Original Research Article

Public expenditure: Economic growth in Cross River State Nigeria prospects and effects

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This study was set out to empirically investigate the prospects and effects of government expenditure on economic growth in Cross River State, Nigeria. Three selected areas of government expenditure which include: government expenditure on education, agriculture and health and growth rate of Cross River State as proxy for economic growth. Time series data covering the period between 2007 and 2015 were used for the study. The analysis examined the stochastic characteristics of each time series by testing their stationarity using Augmented Dickey Fuller (ADF) test. Findings revealed that all the time series are stationary at either first or second difference. The Johansen co-integration procedure indicates that the variables are co-integrated. The likelihood ratio revealed two co-integrating equations in both cases. From the error correction model, the following interesting findings were made, government expenditure on education, government expenditure on health and government expenditure on agriculture significantly affect economic growth in Cross River State. The study recommended that the independent corrupt practices and other related crimes commission and the economic and financial crime should be reformed, strengthened and modernized to engender transparency in the conduct of government affairs and the government should implement tax reforms to increase revenue.

Key words: Government expenditure, economic growth, expenditure on education, expenditure on health and expenditure on agriculture

INTRODUCTION

The direction and magnitude of relationship between government expenditure and economic growth has continued to generate series of debate among scholars. It is obviously presumed that Government performs two basic functions- protection (and security) and provisions of certain public goods. The Protective function entails creation of rule of law and enforcement of property rights which helps to minimize risks of criminality, protect life and property, and the nation from external attacks; while defense, roads, education, health, and power, etc are goods provided by government (Abu and Abdullahi, 2010). Many scholars have supported the fact that increases in government expenditure on socio-economic and physical infrastructures encourage economic growth. For instance, studies conducted by Abu and Abdullahi, (2010) concluded that expansion of government expenditure induce economic growth positively. This study simply suggest that government expenditure on health and education raises the productivity of labour and increase the growth of national output. Similarly, expenditure on infrastructure such as roads, communications, power, etc, reduces production costs, increases private sector investment and profitability of firms, thus fostering economic growth (Abu and Abdullahi, 2010).

It has been the desire of nations from all over the world to improve the welfare of their people and give them the power not only to afford the basic necessities of life, but also to empower them to be economically useful to their nations. It is the quest to achieve these that nations are stimulated to increase their Gross Domestic Products (GDP), achieve balance of payment equilibrium, achieve price stability, and increase business activities. Thus, economies are working towards achieving economic growth. Beyond this, they are working towards achieving
economic development which does not only involve economic growth, but also transformational changes that accelerate the pace of growth. Though, these are goals, not all nations have been able to achieve them. This is why nations are still classified into the categories of underdeveloped, developing, emerging and developed. Irrespective of each nation’s category, each has to work towards survival and sustainability by pursuing the goal of economic growth and development.

If the goal of economic growth and development will be achieved, appropriate measures must have to be taken. Various economists have come up with various theories and postulations in this regard. Adam Smith postulated a laissez-faire system such that the government should not intervene in the economy and to allow the market system free access to pursue surplus value, which according to him, will lead to the wealth of nations (Gbosi, 2002). Classicalists and neo-classicalists still hold this view. On the contrary, Keynes (1936) came up with a postulation that faulted Adam Smith’s postulation. In his view, the government cannot hands-off out-rightly, as the market has failure tendencies that are costly. He therefore postulated that the government should be involved by increasing government expenditure to stimulate aggregate demand, which will culminate in economic growth. These two postulations have governed the process of economic growth and development till date; and the strength of each has been tested overtime.

If the market be made solely responsible for the allocation of resources, as advocated by Smith, circumstances will emerge where the pursuit of private interest will not lead to the efficient employment of resources; neither will there be fair distribution. At such point, it is considered that the market failed. Government intervention is thus the way out. The government has to increase its expenditure to stimulate aggregate demand to restore the economy and improve economic growth (Keynes, 1936). The question however is what size of government expenditure affects economic growth. Many studies postulate that countries with more growth had large government sizes while those with less growth had smaller government sizes. Knoop (1999) found out from his study that reducing the size of the government reduces economic welfare and growth. But this does not hold in all cases as other studies have come up with contrary results.

Another strand of literature emphasized the effectiveness of government, in order to sustain interest and power; government sometimes increase expenditure and investment in unproductive projects (white elephant) or goods that can be better (efficiently) produced by the private sectors. This irrational activity often produce misallocation of resources and impedes the growth of national output. The studies conducted by Laudan, 1986, Folster, and Henrekson, 2001 asserted that increasing government expenditure may slow down overall performance of the economy. That is, financing government increasing expenditure by raising taxes or borrowing may induce long-run adverse effects, as higher taxes discourages innovation which in-turn results in lower income and aggregate demand. Likewise, if government finances her expenditure by domestic borrowing, it may crowd-out private investors hereby mitigating the level of growth.

Available statistics show that total government spending has continued to rise steadily all through the year observed. Following the work of Desmond N.I et al (2012); the government capital expenditure on economic services, social and community services, and transfers increased from N15.5M, N1.4M and N100.7M in 1970 to N809120.5M, N120049.2M and N211758.1M in 2009 respectively. Likewise the recurrent expenditure has witnessed the same upward trend from N25.95M, N43.55M and N511.42M in 1970 to N340193.77M, N346071.95M and N622171.10M respectively in 2009. The total government recurrent expenditure has consistently been on the increase with about 18 percent rise from 1970-1985 and about 10 percent increases from 1990-2005; in the same manner the capital expenditure has maintained similar upward trend. Whether this continuous increase has accentuated the level of growth of the Nigerian economy has necessitated the need for this research work. This necessitates the research interest for empirical quantitative measure of effect of government expenditure on economic growth in Cross River State.

Hypotheses of the study

1. There is no significant relationship between government expenditure on education and economic growth in Cross River State
2. There is no significant relationship between government expenditure on health and economic growth in Cross River State
3. There is no significant relationship between government expenditure on agriculture and economic growth in Cross River State

Literature review

The empirical work in the relationship between government expenditure and its economic growth is being explored. This is calculated effort aimed at ascertaining the validity of the theoretical work.

In an attempt to prove and defend his ever law of increasing state activity (Wagner). This impact can be of two parts, firstly the negative impact of the size of the government expenditure on the factor productivity and capital formation which resulted to lower economic growth. According to Devarajan et al. (1996) using the sample of OECD countries found that government expenditure on education and defense did not have a positive impact on economic growth.

Also government extra allocation to its officials i.e. allowance for vacation, car allowance etc do not have any positive impact on the economy. Secondly the positive significant of the government spending on the economic growth. However, Al-Yousif (2000) when investigating the
effect of government expenditure on economic growth in Saudi Arabia found a positive relationship. FAM (1986) using a sample of one hundred countries found government expenditure to have significant positive effect on growth.

Lin (1994) used a sample of sixty-two countries and found that non productive spending has no effect on growth in advanced countries but a positive in less developed countries Wagner has indicated that it can be verified empirically for a number of developed countries that is the per capita output increases over time the state activities and expenditure growth more than proportionately. 

For one to appreciate this, it is necessary to appreciate this, it is necessary to provide statistically tested evidence that is related to Nigeria. Aigokoha (1996) in his study of the impact of government expenditure as a measure of economic growth found a negative relationship between the two. Ozoh (1993) in his study of local government expenditure in Nigeria found a negative relationship between government’s expenditure and economic growth and concluded that government expenditure has an adverse effect on growth.

Faforiji Bayo (1984) established that existence of Wagner’s law he made use of two methods in his study. Firstly he compared the rate of growth of public expenditure and that of the National income. He there observed the electricity coefficient of public expenditure is greater than unity and is increasing overtime.

In his study, he used data covering seventeen years period (1961-1977) and also tested the existence of “displacement effect”. He then came up with the following conclusion. The evidence shows that while Wagner’s law is readily applicable to the trend of public expenditure growth in Nigeria, the displacement effect is not (at least not in the peacock-Wiseman fashion). In 1967-1970 civil war did not affect the tax and expenditure trend significantly but the displacement can easily explain in the trend increased tax which occurred in Nigeria the advent of oil boom (Faforiji 1984:30) Mbanefo (1987) on his own study explained the growth of government expenditure in Nigeria by testing peacock and Wiseman’s hypothesis. He focused on the expenditure of federal and state government and was concerned more with war years (1966-1970) and less with oil boom era (1971-1980). He tested the displacement effect of the civil war combined with expenditure of federal and state government; he approached the problem by drawing inference from the tax structure in the war years and the trend of expenditure.

Akpan (2005) also tested the applicability of wagner’s law in Nigeria. He discovered that the growth in government expenditure would not likely be the cause of income growth. Studies based on endogenous growth model distinguished between productive and non productive expenditure (Keller et al., 1998).

According to Barro and Sala-i-Martin (1992) expenditure are classified as productive if they are included in private production function and unproductive if they are not. This implies that productive expenditure has a direct effect upon economic growth but unproductive expenditure has indirect effect.

Most empirical work provides multivariate time series method in estimating the response of consumption and the number of other variable to an exogenous increase in government spending. Although some other economist questioned the acceptability of wagner’s law as it implies to different level of economic development. Adzadoli and Gray (1985) used panel data for 55 countries divided them into three groups which is in accordance to their level of development from (1963-1979). Using five regressions, they upheld wagner’s law for the wealthier countries, but not for poorest countries. This contradicted some previous works which were in support of wagner. It became clear that no unique test of wanger’s law existed, and where strong evidence existed. It has fraught with methodological shortcomings. This was as a result of the fact that the test so far ignored the time series properties of the data used.

Considering a developing country like Nigeria the uninsured question still remain; does wanger’s law apply to a developing country’s GDP and it government expenditure a spurious one? If the law holds, what is the nature of degree of the relationship? Under a federal system of administration, the public sector role is economic management and development is joint responsibilities of the various level of government. A federal structure ensure that public goods and services which are consumed at local level are supplied by state and local authorities, while the central government concentrated on provision of services that are centrally consumed. Therefore in order to prevent conflict and ensure efficient provision of services, the functional responsibilities and revenue sharing arrangement are always enshrined in the constitution protecting the inter-dependence, inter government fiscal relationship of the tiers of government Shashanka and Singh (2000) analyzed the effect of fiscal stimulus on growth by choosing a proxy variable to test the later effect on the overall economic growth. Devarajan, Swaroop and Zon (1996) classified government expenditure as productive and unproductive and found public spending to have negative effect on economic growth in developing countries. This emphasis made on previous studies, no empirical evidence provides clear-out answer on how the consumption of public expenditure affects economic growth. Also Shashanka and Singh (2008) argue in favour of market forces based on requirement of a business environment which motivate private investment and sustain economic growth. Non-productive such as subsidies to public enterprise produces marketable goods. The government borrowing to finance such activities weakens the business environment.

That most economists also differ on the effect of taxes and it’s composition especially on investment and consumption. They summarized their main conceptual argument within the framework of the stylized classified and Keynesian model. The prediction of the response of investment to government expenditure and taxes are totally opposite in the case of Keynesian and classical framework. On the opposite both model predicts similar
response of consumption to change in taxes.

Abu and Abdullahi (2010) in their work on public spending in developing countries trend, determination and impact with the objective to view trends of government expenditure in developing world, to develop and analytical framework for determine the differential impact on the various government expenditure on economic growth. They started by saying that, it has been observed that structural adjustment programme (SAP) increase that size of government spending but not all sector receives equal treatment. To them total government spending on agriculture, education and infrastructure in Africa, on agriculture and health in Asia and education and infrastructure in Latin America, all decline as a result of structural adjustment programme (SAP).

The expectation was not realized due to a mix of government expenditure that was not conducive to growth. However Ogiogio (1995) carried out a study. The result of this analysis indicated that the productivity base which can support growth in absence of investment is lacking. The economic is vulnerable to micro economics disturbances. Junko and Vitali (IMF, 2008) investigate the impact of government expenditure on economic growth in Azerbaijan because of the temporarily oil production boom (2005-2007), which caused expectation large expenditure increased aimed at improving infrastructure and raising income. Azerbaijan total expenditure increased by a cumulative 160 percent in nominal value from 2005 to 2007 (i.e. from 41 percent of non oil crop to 74 percent). In their research reference which were made to Nigeria and Saudi Arabia (1970-1989) who have also experienced oil boom and increased government expenditure over the years. The study stimulated the new classical growth model tailored to the Azeri conditions.

**METHODOLOGY**

This study adopts empirical and theoretical analysis with a view to determining how government expenditure impact on economic growth in Cross River State, Nigeria. The period of the study covers the era of structural adjustment programme which attempted to address the fundamental problems facing the Nigerian economy. Data were collected from various publications of government agencies. Data so collected were summarized and tabulated prior to analysis. Data were generated basically from the secondary sources. The study made use time series data from 2008-2015 sourced from various publications of Budget Department of Cross River State Government. The study adopts a time series technique. The estimation procedure begins with a unit root test, followed by a test of co-integration, then estimation of an over-parameterized model and finally parsimonious model. All estimations were performed in the econometrics software program EIVIEWS.

**Model specification**

Of the numerous studies on the employment-economic growth relationship, we may draw example from the model formulated and adapted from the extant literature. Swane and Vistrand (2006) used a data from 1980-2004 specified a model as follows.

\[
GR = f(\text{EXPEDU}, \text{EXPHEALTH}, \text{EXPAGRIC})
\]

Where

\[
\begin{align*}
\text{EXPEDU} &= \text{Government expenditure on education} \\
\text{EXPHEALTH} &= \text{Government expenditure on health} \\
\text{EXPAGRIC} &= \text{Government expenditure on agriculture}
\end{align*}
\]

**Presentation, analysis and interpretation of data**

**Descriptive statistics of the study variables**

Various descriptive statistics are calculated from the variables under study in order to describe the basic characteristics of these variables. Table 1 presents the descriptive statistics of the data collected. It contains the sample means, medians, maximums, minimums, standard

<table>
<thead>
<tr>
<th>Table 1: Descriptive statistics of study variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPEDU</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Median</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Kurtosis</td>
</tr>
<tr>
<td>Jarque-Bera</td>
</tr>
<tr>
<td>Probability</td>
</tr>
</tbody>
</table>

*Note: Asterisk (*) denotes the null of normality was rejected at 1% significance level. Source: Compiled by author.*
Table 2: Unit root test - augmented dickey fuller test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Trend</th>
<th>At Level</th>
<th>At 1st Difference</th>
<th>At 2nd Difference</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEXPEDU</td>
<td>Without</td>
<td>-1.79</td>
<td>-6.54*</td>
<td>-8.40*</td>
<td>I(1)</td>
</tr>
<tr>
<td>LEXPHEALTH</td>
<td>Without</td>
<td>-0.67</td>
<td>-3.34**</td>
<td>-7.06*</td>
<td>I(2)</td>
</tr>
<tr>
<td>LEXPAGRIC</td>
<td>Without</td>
<td>-2.61</td>
<td>-4.16*</td>
<td>-6.44*</td>
<td>I(1)</td>
</tr>
<tr>
<td>LGR</td>
<td>With</td>
<td>-1.21</td>
<td>-3.96**</td>
<td>-9.22*</td>
<td>I(2)</td>
</tr>
</tbody>
</table>

Source: Computed by the author
*Significant at 1%, **Significant at 5%
Critical value with trend: 1%-4.06; 5%-3.46
Critical value without trend:1%-3.50;5%-2.89
Note: Variables are as defined in Figure 1

Table 3: Hypothesis with GR as the dependent variable

<table>
<thead>
<tr>
<th>Eigenvalues</th>
<th>Hypothesis</th>
<th>Trace test</th>
<th>Critical value at 5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.305</td>
<td>r=0</td>
<td>90.827*</td>
<td>76.973</td>
</tr>
<tr>
<td>0.225</td>
<td>r=1</td>
<td>56.942*</td>
<td>54.079</td>
</tr>
<tr>
<td>0.154</td>
<td>r=2</td>
<td>33.206</td>
<td>35.193</td>
</tr>
<tr>
<td>0.106</td>
<td>r=3</td>
<td>17.675</td>
<td>20.262</td>
</tr>
<tr>
<td>0.075</td>
<td>r=4</td>
<td>7.278</td>
<td>9.165</td>
</tr>
</tbody>
</table>

Source: Computed by the author
*Indicates rejection of the likelihood ratio tests at 5% significant level.
Note: None of the deterministic variable is restricted to the co-integration space and trace test is adjusted for degrees of freedom. The critical values are taken from MacKinnon-Haug-Michelis (1999)

deviations, skewness, kurtosis as well as the Jarque-Bera statistics and probabilities (p-values).

As indicated from Table 1, all the variables are asymmetrical. More precisely, skewness is positive for all the variables. Kurtosis value of all the variables also shows data is not normally distributed because the values of kurtosis are deviated from 3. The Jarque-Bera statistics and p-values reject the normality assumption at 1% level of significance for all. Therefore, the descriptive statistics show that the values are not normally distributed about its mean and variance. In other words, we can say that there is no randomness in the data and therefore, being sensitive to speculation shows a periodic change.

Unit root test results

In literature, most time series variables are non-stationary and using non-stationary variables in the model might lead to spurious regressions (Granger and Newbold 1977). The first or second differenced terms of most variables will usually be stationary (Ramanathan 1992). In this study, all the variables are tested at levels, first and second differences for stationarity using the Augmented Dickey-Fuller (ADF) test. The result shows all the variables are non-stationary at level as presented in Table 2. Furthermore, the result shows that all the variables are stationary at first or second difference. Hence, it can be concluded that all the variables are integrated of either order one I(1) or order two I(2).

Co-integration test results

Given that all the variables are integrated of either order one or order two, co-integration test was carried out to establish whether the variables, though individually non-stationary, could be co-integrated as a group and also to establish the existence of a long-run relationship among them. The Johansen procedure is used to achieve this.

Tables 3 and 4 presents the estimates of Johansen procedure and standard statistics. This study used the degrees of freedom adjusted version of trace statistic to determine the number of co-integrating vectors since with the existence of small samples with too many variables or lag the procedure tends to overestimate the number of co-integrating vectors (Civcir, 2003). The tests statistics strongly rejects the null hypothesis in favour of two co-integration relationship at 5% significant level.

Table 5 recorded a substantial improvement over Table 4 in the sense that the coefficient of determination or the adjusted R² indicates that about 57.25% variability of all economic growth measured by growth rate (GR) in Cross River State can be explained by government expenditure on education, agriculture and health. The DW statistic in our output is 2.064 and is indicative that there is no serial correlation. With the F-value 9.284 (p<0.000006) for the regression, we reject the null and accept that the regression is significant overall.

Summary of findings

This study was set out to empirically investigate the effects and prospects of government expenditure on economic growth in Cross River State, Nigeria. Three selected areas of government expenditure which include: government expenditure on education, agriculture and health and growth rate of Cross River State as proxy for economic growth in Cross River State, Nigeria.
### Table 4. Over-parameterized error correction result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.052013</td>
<td>0.031596</td>
<td>1.646196</td>
<td>0.1046</td>
</tr>
<tr>
<td>D(LEXPEDU)</td>
<td>-0.000968</td>
<td>0.002134</td>
<td>-0.453483</td>
<td>0.6517</td>
</tr>
<tr>
<td>D(LEXPHEALTH)</td>
<td>-0.964577</td>
<td>0.434724</td>
<td>0.323744</td>
<td>0.7472</td>
</tr>
<tr>
<td>D(LEXPAGRIC)</td>
<td>-0.028041</td>
<td>0.002256</td>
<td>-0.023845</td>
<td>0.9810</td>
</tr>
<tr>
<td>D(LEXPEDU (-1))</td>
<td>1.864609</td>
<td>0.569166</td>
<td>3.276037</td>
<td>0.0017</td>
</tr>
<tr>
<td>D(LEXPHEALTH (-1))</td>
<td>-0.020078</td>
<td>0.008943</td>
<td>-0.225363</td>
<td>0.8221</td>
</tr>
<tr>
<td>D(LEXPAGRIC (-1))</td>
<td>-0.666733</td>
<td>0.384081</td>
<td>-1.735918</td>
<td>0.0873</td>
</tr>
<tr>
<td>D(LEXPEDU (-2))</td>
<td>0.105692</td>
<td>0.135005</td>
<td>0.782874</td>
<td>0.4365</td>
</tr>
<tr>
<td>D(LEXPHEALTH (-2))</td>
<td>-0.964577</td>
<td>0.434724</td>
<td>0.323744</td>
<td>0.7472</td>
</tr>
<tr>
<td>D(LEXPAGRIC (-2))</td>
<td>-0.028041</td>
<td>0.002256</td>
<td>-0.023845</td>
<td>0.9810</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.723672</td>
<td>0.013756</td>
<td>3.785794</td>
<td>0.0003</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.512007</td>
<td>0.045427</td>
<td>1.156488</td>
<td>0.0051</td>
</tr>
<tr>
<td>S.E. of regression</td>
<td>0.115117</td>
<td>0.024126</td>
<td>-2.960000</td>
<td>0.0040</td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>0.859872</td>
<td>0.073500</td>
<td>-1.740145</td>
<td>0.0857</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>2.011339</td>
<td>0.014944</td>
<td>6.011317</td>
<td>0.0000</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>2.011339</td>
<td>0.014944</td>
<td>6.011317</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

**Source:** Computed by the author  
Dependent Variable: (LGR)  
Method: Least Squares  
Date: 07/2/16  
Time: 23:09  
Sample(adjusted): 2007:2 2015:4  
Included observations: 9 after adjusting endpoints

### Table 5. Parsimonious error correction result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.052078</td>
<td>0.013756</td>
<td>3.785794</td>
<td>0.0003</td>
</tr>
<tr>
<td>D(LEXPEDU (-1))</td>
<td>0.465984*</td>
<td>0.094547</td>
<td>4.928610</td>
<td>0.0000</td>
</tr>
<tr>
<td>D(LEXPHEALTH (-1))</td>
<td>0.621146*</td>
<td>0.115648</td>
<td>2.880366</td>
<td>0.0051</td>
</tr>
<tr>
<td>D(LEXPAGRIC (-2))</td>
<td>-1.544743*</td>
<td>0.531499</td>
<td>2.906390</td>
<td>0.0047</td>
</tr>
<tr>
<td>D(LEXPHEALTH (-2))</td>
<td>-1.27901</td>
<td>0.073500</td>
<td>-1.740145</td>
<td>0.0857</td>
</tr>
<tr>
<td>LEXPEDU (-1)</td>
<td>-0.071414*</td>
<td>0.024126</td>
<td>-2.960000</td>
<td>0.0040</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.647762</td>
<td>0.013756</td>
<td>3.785794</td>
<td>0.0003</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.572483</td>
<td>0.013756</td>
<td>3.785794</td>
<td>0.0003</td>
</tr>
<tr>
<td>S.E. of regression</td>
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<td>0.0003</td>
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<tr>
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<tr>
<td>Log likelihood</td>
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<tr>
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<td>0.013756</td>
<td>3.785794</td>
<td>0.0003</td>
</tr>
</tbody>
</table>

**Source:** Computed by the author  
Dependent Variable: (LGR)  
Method: Least Squares  
Date: 07/13/12  
Time: 23:09  
Sample(adjusted): 1987:2 2009:4  
Included observations: 91 after adjusting endpoints

Time series data covering the period between 2007 and 2015 were used for the study. The analysis examined the stochastic characteristics of each time series by testing their stationarity using Augmented Dickey Fuller (ADF) test. The findings show that only inflation is stationary at level, while the other time series are stationary at either first or second difference. The Johansen co-integration procedure indicates that the variables are co-integrated. The likelihood ratio revealed two co-integrating equations in both cases. From the error correction model, the following interesting findings are made:

1) Government expenditure on education significantly influence economic growth of Cross River State. This finding collaborates with an earlier study on government expenditure on education and economic growth carried out by Maku and Atanda (2009).
2) Government expenditure on health also significantly influence economic growth in Cross River State.
3) The study also showed that there exist a significant effect of government expenditure on
agriculture on economic growth in Cross River State

Conclusion

Many studies have been conducted to explore the impact of government expenditure on economic growth theoretically and empirically. The finding of this study has led us to the conclusion that government expenditure on Education, Health and Agriculture significantly influence economic growth of Cross River State.

Recommendations

On the basis of the findings of this study, the following policy recommendations are made.
1. The Government of Cross River State should increase spending in the agricultural sector with special interest in rice and oil palm production to boost her output and thus increasing aggregate demand and creating employment opportunities for both graduates and school leavers.
2. The State government should increase spending on the health sector by providing a seven star health facility that will curb capital flight and boost health tourism in the State since the State is well known for tourism potentials
3. The government should strengthen spending on education by encouraging skill acquisition at all levels of school leavers and graduate will be job creators and not job seekers.
4. The government should adopt a public medium term expenditure framework to ensure predictable and sustainable public financing at all level of government.
5. The state budget strategy of constraining spending growth below output growth particular attention paid to constraining transfer payment should be encouraged.

Competing interests

The author declare that they have no competing interests

REFERENCES
