Capital Budget Implementation and Nigerian Economic Growth: A VECM Approach

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Abstract: The study examined the capital budget implementation and economic growth of Nigeria using vector error correction model approach. Specifically, the study analyzed the impact of administrative capital expenditure, economic services capital expenditure, social community services capital expenditure, transfer capital expenditure, on economic growth of Nigeria. Time series data were collected from the statistical bulletin of the Central Bank of Nigeria. Data collated were analyzed using vector error correction estimation, impulse response estimation, variance decomposition alongside post estimation test such as normality test, autocorrelation test and heteroscedasticity test. The study revealed that capital expenditure on administration has positive impact on gross domestic product as reflected by its one period lag estimate (β=1.842224, std err=9.06270). On the long run its impact on gross domestic product is negative and significant (β=-249.2560, std err=109.255), with gross domestic product responding positively to its one standard deviation innovations only during the second and third period horizon after which the response remain negative. The impact of capital expenditure on economic service on gross domestic product is positive as reflected by its one period lag estimate (β=1.300115, std err=3.43153). The long run impact of capital expenditure on gross domestic product is negative and insignificant (β=-24.68280, std err=37.6859) with the response of gross domestic product to it one standard deviation innovation shock is negative for the first seven periods and though the percentage forecast error of gross domestic product explains increases over the time horizon. The study concluded that capital budget implementation in Nigeria has positive impact on economic growth; though over time such dynamic impact has not been significant. In the same vein capital budget implementation in the country has not significantly contributed to economic growth of the country especially when analyzed in the long run context. Observably the long run impact on capital expenditure had hither-to contributed relatively and significantly as compared to other subset of capital budget. It is therefore recommended that government should put in place effective budget implementation framework that can help foster rapid economic growth that can be sustained to attain the desired level of economic development in the country, it also recommended that government should allocate more percentage of its capital expenditure to transfer as this will have significant long run impact on the growth of the economy. Furthermore, it equally recommended that government should increase fraction of the total budget that goes to capital expenditure in the country to help maintain and sustain infrastructural development needed for improved productivity in the country.

Keywords: Capital Budget, Budget Implementation, Economic Growth, Capital Expenditure, VECM.
1. INTRODUCTION

Capital budget is a fragment of the national budget, which shows the proportion of the national revenue allocated for the purpose of carrying out project with a useful life of more than a year. The crux of this study being ‘capital budget’ unlike the recurrent budget is initiated to provide funds to finance capital projects or assets. Ogjujuba and Ehigiamusoe (2014) stated that capital project includes the likes of construction of roads, bridges, hospitals, schools, prisons, public administrative buildings, highways, dams and irrigation systems; the purchase of machinery and equipment; and the supply of water, electricity, and transport, health and educational facilities. Either a recurrent or capital budget, a budget must fulfil the obligation for which it was initiated. Generally, for a budget (capital or recurrent) to perform its obligation effectively and efficiently, it must, however, possess adequate monitoring. For a public budget to effectively perform its obligations, it should be well designed, effectively and efficiently implemented, adequately monitored and ultimately, its performance should be evaluated. However, it must be stated herein that the beauty of a budget lies not in its formulation or initiation but in its implementation. The performance of a country’s budget heavily depends on whether it is effectively and efficiently implemented to meet the needs and aspirations of the people of the country (Faleti & Myrick 2012)

A well-implemented budget helps to translate government policies and programs into outcomes that have a direct, positive impact on people, such as the development of critical infrastructure (electricity, roads, water, hospitals, schools and so on), the provision of employment opportunities, the reduction of poverty and the supply of transport, health and educational facilities. Once the budget is approved, the Federal Ministry of Finance issues a warrant to the Accountant General of the Federation to release funds from the consolidated revenue in order to meet the budgeted services that are approved in the estimates. The warrant authorizes the MDAs to incur expenditures that are approved in the estimates (Akande, Falokun, Taiwo, Ogunwale & Adeoye, 2009). This is the stage where activities in the budget are executed and implemented. It is important to note that the implementation of the budget is the responsibility of the executive arm of the government. Economic growth is an essential ingredient for sustainable development. Economic growth brings about a better standard of living of the people and this most time is brought about by improvement in availability of infrastructures, access to food, health, housing, education. These sectors are very important in stimulating the economic activities as well as addressing the nation’s human development and thereby bringing about sustainable development (Boiyor & Willy, 2016). Tracing history would reveal that the implementation of the 2012 capital budget did not match expectations, as controversy concerning the implementation level of the 2012 Appropriation Act continued between the executive and legislative arms of the government. While the executive claimed that 56% of the budget had been released and implemented by July 20, 2012, the National Assembly submitted that less than 30% of the budget was implemented by September 30, 2012.

The Central Bank of Nigeria (CBN) in their various bulletin issues has made it clear that administration, economic services, social community services and transfer are the major components of capital expenditure. The aforementioned will be used as proxy for capital expenditure in Nigeria. It becomes imperative to use this variables as it will serve as good indicators to reveal the actual component of capital expenditure that contribute negatively to economic growth or otherwise. Review of related empirical studies on this subject matter revealed that there are gaps that must be filled. Observably previous studies majorly analyzed the impact of aggregate capital budget expenditure on economic growth, thus restricting the possibility of tracking the influence of sectoral allocation of capital expenditure, which goes a long way in the determination of how capital budget implementation will engender economic growth in the country. In the same vein, previous researchers mostly focus on the static analysis of the connection between capital expenditure and economic growth without much attention given to the dynamic link between the two phenomena. Observably, previous studies only attest to short run and long run impact of capital expenditure on economic growth using static based techniques such as ordinary least regression analysis, co-integration analysis, error correction model analysis (ECM) without tracking the response of each of the variables to innovations shock on the other that is there is no focus on how economic growth respond in innovative shock in capital expenditure and vice versa. Given these gaps, this study set out to
investigate the impact of capital budget implementation on economic growth using disaggregated capital expenditure to administration, economic services, social community services as well as transfer, using Vector Error Correction Model (VECM) dynamic estimation techniques.

2. LITERATURE REVIEW

2.1 Concept of Budget

Budget is the framework that provides the principle to arrive at the predetermined goal. The historical French word for budget is known as bougettee meaning, small bag: but it was first used in England to explain the white leather bag that held the seal of the medieval court of the exchequer. Therefore, the minister’s bag containing his proposals for financing government expenditure became his budget (Abuh & Aliyu, 2013). Budget is a plan that provides answers to three important questions in any society: first, what is the desired goal or goal to be achieved? Second, when is the goal to be achieved and thirdly, how is to be achieved? This is because any society without goal, any performance or production lacks direction, problems are unforeseen, and therefore result will be hard to interpret (Abuh & Aliyu, 2013). Planning involves objective and result oriented thinking well ahead, taken into consideration known and unknown variables factors. Budget is therefore a formal expression of an organizational plan. Shim (2005) sees budget as a formal expression of governmental plans, goals, and objectives which covers all aspects of the operations for a designated time period usually one year; it is a tool used in providing governmental target and directions. Walter (2009) considers budget as a financial statement, a monetary statement or quantitative course of action prepared and approved before a given period of time stating the policies to be pursued during the time and ways of achieving the target. Abdullahi (2011) describes budget in the following words: plan, forecast, standard, or even prediction depending on the nature of the society. Reviewing these various opinions, explanations and or descriptions, budget could therefore be summarized as awareness and objective financial and related non-financial plans and guidelines of a society to achieve a specified level of activities in a specific period. On the government aspect, Abuh and Aliyu, (2013) sees budget as an aggregate policy instrument for organizing and articulating governmental goals and objectives often expressed in terms of programmes and projects usually accompanied by a financial plan and the instruments for not only attaining pre-determined goals but also for imposing checks and balances on the relationship between government and the governed. In line with this detailed explanation, Abdullahi (2007) describes government budget as a political and administrative instrument by which the executive and the legislative bodies endeavour to allocate scarce resources among the various organs of government either at state or federal level. This descriptions rather than definitions of budgets are comprehensive enough to bring out exactly what government budget is all about.

2.2 Budget Implementation in Nigeria

It is indeed worrisome that practically every year, the implementation of the capital budget in Nigeria has been the major source of friction between the Executive and the House of Representatives. In 2010 and 2011, the Executive was also accused of poorly implementing the capital budget. While further reflecting on the cause of the dispute, Onike (2013) opined that it is not surprising that there was no serious contention regarding the recurrent budget, as the recurrent budget mainly involves the statutory budget allocation and general costs of administration/overhead. Critics, nonetheless, recognized that in the last 13 years or so, the federal budget has never been implemented satisfactorily. Furthermore, a credible explanation for the disbursement of the billions of Naira that remained unspent at the end of each year has never been given. Boyo (2012) asserted that Nigerians may be misguided, however, for expecting substantial improvements in social welfare resulting for the appropriate and full disbursement of the capital budget. Indeed, the seemingly traditional pattern of less than 30% allocation for capital projects cannot truly support rapid infrastructural improvement for a country of over 160 million people. Furthermore, tangible progress is further precluded by the prevalent culture of impunity and corruption, which inevitably substantially diminishes the already meager capital budget. Ayemokhia (2010) posited that Nigeria produces one of the best annual budgets in all of Sub-Saharan Africa because the nation is blessed with an
intimidating array of top-class financial experts in the Central Bank of Nigeria (CBN) and ministries in charge of Finance, Planning and Budget. However, these advantages have not helped drive Nigeria up the ladder of developing nations in the world.

2.3 Economic Growth

Economic growth has long been considered an important goal of economic policy with a substantial body of research dedicated to explaining how this goal can be achieved. Economic growth has received much attention among scholars. According to Abata, Kehinde and Bolarinwa (2012), classical studies estimate that economic growth is largely linked to labor and capital as factors of production. The emergence of the endogenous growth theory has encouraged specialists to question the role of other factors in explaining the economic growth phenomenon (Bogdanov, 2010). Economic growth represents the expansion of a country’s potential GDP or output. For instance, if the social rate of return on investment exceeds the private return, then tax policies that encourage can raise the growth rate and levels of utility. Growth models that incorporate public services, the optimal tax policy lingers on the characteristic of services (Olopade & Olopade, 2010). Economic growth has provided insight into why state growth at different rates over time; and this influence government in her choice of tax rates and expenditure levels that will influence the growth rates Abata, et al (2012).

2.4 Empirical Review

Asghar, Hussain and Rehman (2012) examined the impact of government spending on poverty reduction in various sectors of the economy in Pakistan. Time series annual data for the period from 1972 to 2008 were used to analyze the long-run impact of government spending on education, health, and economic and community services. The results showed that government spending on education and law and order significantly contribute to poverty reduction, while government spending on budget deficit and economic and community services appeared to be responsible for increased poverty in Pakistan. The study recommended that the Government of Pakistan allocate more resources to the education and health sectors to foster the development of human capital.

Health and education are very important determinants of poverty. Educated and healthy individuals may have more opportunities to obtain better employment, which increases their earnings and helps raise their standard of living. Education is considered to be the most important way to build human capital and eradicate poverty by enhancing productivity. Health is another major form of human capital. The results of various studies have shown that there is a positive relationship between government expenditures on health and poverty reduction, as spending on health increases individuals’ capabilities and thereby reduces poverty. Improvements in health lead to increased life expectancy, which provides more opportunities for people to work and earn more income and eventually leads to poverty reduction. Government spending on both education and health are accordingly expected to have a negative impact on poverty (Asghar, et al 2012).

Humera (2015) study examine the impact of budget deficit on economic growth in Pakistan during the period from 1976-2007. Co integration technique, VAR Granger Causality test and vector error correction model is used. Economic growth was measured as growth in GDP. The technique of time series econometrics such as Granger Causality, Johansen co integration and error correction models has been used. Johansen co integration shows that all variables are co integrated and error correction term is also significant. However we have not found any significant impact of budget deficit on economic growth of Pakistan. The results showed that GDP cause investment and investment cause deficit. However budget deficit does not cause GDP growth. The results of this study also support Keynesian view about budget deficit. The findings also show that the budget deficit has a positive impact on the growth.

Oke (2013) examined the effect of budget implementation on the Nigerian economic growth and provides panacea to the problem of budget allocation and its implementation. To achieve this broad goal, the econometric model of ordinary least square (OLS) regression test was employed for analysis and time series data span from 1993 to 2010 was considered. Budget in the public sector of Nigeria has almost
become a ritual or a yearly affairs which though good in content but without appreciable result. The issue of budget implementation has long been a source of concern to the public and also considering the important impetus of budget implementation on economic growth and development in Nigeria. The dependent variable was proxied by gross domestic product (GDP), while the independent variables were public total expenditure (PEX), public recurrent expenditure (PRE), public capital expenditure (PCE) and external debt (EXD). The results revealed that budget implementation has a positive effect impact on Nigeria economic growth. The results further showed a positive relationship between GDP and public total expenditure (PEX), public recurrent expenditure (PRE), public capital expenditure, external debt (EXD), while public capital expenditure (PCE) shows a negative relationship to GDP. The study recommends that government should enact on enabling law that will ensure the workability of its budgets according to plans and increase the proportion of capital expenditure to recurrent expenditure so that the budget can have growth and development inducement among others.

Ogunjuba and Ehigiamusoe (2014) examined the capita budget implementation in Nigeria: evidence from the 2012 capital budget. Using descriptive analysis, this paper examines the capital budget implementation in Nigeria by focusing on the 2012 Federal Government Budget. The findings indicate that only 51% of the total appropriated funds for capital expenditures were utilized as of December 31st, 2012. The observed level of performance is insufficient to foster rapid economic development and reduce poverty. Some of the challenges that are responsible for the low performance include poor conceptualization of the budget, the inadequacy of implementation plans, the non-release or late release of budgeted funds, the lack of budget performance monitoring, the lack of technical capacity among MDAs, and delays in budget passage and enactment. The paper recommends that Nigerian government formulate a realistic and credible budget, release appropriated funds early to Ministries, Departments, and Agencies (MDAs), and strengthen MDAs’ technical capacity to utilize capital expenditures in order to improve the index of capture in public expenditures.

3. METHODOLOGY

Model Specification
This study specified vector error correction model, with five endogenous variables in the quest to ascertain the dynamic impact of disaggregated capital expenditure implementation on administration, economic services, social community services and transfer on economic growth of Nigeria. Linear representation of the VECM model estimated in the study is presented below:

Model 1

\[
\Delta GDP_t = \alpha_1 + \sum_{j=1}^{n} \theta_{1j} \Delta GDP_{t-j} + \sum_{j=1}^{n} \theta_{2j} \Delta CAD_{t-j} + \sum_{j=1}^{n} \theta_{3j} \Delta CES_{t-j} + \sum_{j=1}^{n} \theta_{4j} \Delta CSCHS_{t-j} + \sum_{j=1}^{n} \theta_{5j} \Delta CT_{t-j} + \lambda_1ECT_{t-1} + U_{1t} \tag{i}
\]

Model 2

\[
\Delta CAD_t = \alpha_2 + \sum_{m=1}^{n} \gamma_{1m} \Delta GDP_{t-m} + \sum_{m=1}^{n} \gamma_{2m} \Delta CAD_{t-m} + \sum_{m=1}^{n} \gamma_{3m} \Delta CES_{t-m} + \sum_{m=1}^{n} \gamma_{4m} \Delta CSCHS_{t-m} + \sum_{m=1}^{n} \gamma_{5m} \Delta CT_{t-m} + \lambda_2 ECT_{t-1} + U_{2t} \tag{ii}
\]
Model 3
\[ \Delta CES_t = \alpha_3 + \sum_{q=1}^{n} \varphi_{1q} \Delta GDP_{t-q} + \sum_{q=1}^{n} \varphi_{2q}\Delta CAD_{t-q} + \sum_{q=1}^{n} \varphi_{3q}\Delta CES_{t-q} + \sum_{q=1}^{n} \varphi_{4q}\Delta CSCS_{t-q} \]
\[ + \sum_{q=1}^{n} \varphi_{5q}\Delta CT_{t-q} + \lambda_3 ECT_{t-1} + U_{3t} \]

Model 4
\[ \Delta CSCS_t = \alpha_4 + \sum_{f=1}^{n} \varepsilon_{1f}\Delta GDP_{t-f} + \sum_{f=1}^{n} \varepsilon_{2f}\Delta CAD_{t-f} + \sum_{f=1}^{n} \varepsilon_{3f}\Delta CES_{t-f} + \sum_{f=1}^{n} \varepsilon_{4f}\Delta CSCS_{t-f} \]
\[ + \sum_{f=1}^{n} \varepsilon_{5f}\Delta CT_{t-f} + \lambda_4 ECT_{t-1} + U_{4t} \]

Model 5
\[ \Delta CT_t = \alpha_5 + \sum_{l=1}^{n} \mu_{1l}\Delta GDP_{t-l} + \sum_{l=1}^{n} \mu_{2l}\Delta CAD_{t-l} + \sum_{l=1}^{n} \mu_{3l}\Delta CES_{t-l} + \sum_{l=1}^{n} \mu_{4l}\Delta CSCS_{t-l} + \sum_{l=1}^{n} \mu_{5l}\Delta CT_{t-l} \]
\[ + \lambda_5 ECT_{t-1} + U_{5t} \]

Where:
\begin{align*}
\text{GDP} & \quad \text{Gross Domestic Product} \\
\text{CAD} & \quad \text{Capital Expenditure on Administration} \\
\text{CES} & \quad \text{Capital Expenditure on Economic Services} \\
\text{CSCS} & \quad \text{Capital Expenditure on Social Community Services} \\
\text{CT} & \quad \text{Capital Expenditure on Transfer} \\
\end{align*}

U(s) are the stochastic error term that is impulses, innovations or shocks corresponding to each of the models.
\( \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5 \) are intercept terms corresponding to each of the models while \( \theta_j, \gamma_m, \varphi_q, \varepsilon_f, \mu_l \) are corresponding coefficient estimates for each of the variables across the models.

Sources of Data and Methods of Estimation
The model is estimated using time series annual data for the period 1986 – 2015. The data needed for the study are secondary in nature; implying data will be obtained from published sources. The main source of this data is the Central Bank of Nigeria (CBN) Statistical Bulletin, various issues. This study employed the techniques of Vector Error Correction Model (VECM), alongside impulse response analysis and variance decomposition analysis.

4. EMPIRICAL RESULTS AND DISCUSSION

4.1 Correlation Analysis

<table>
<thead>
<tr>
<th></th>
<th>GDP</th>
<th>CAD</th>
<th>CES</th>
<th>CSCS</th>
<th>CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAD</td>
<td>0.92194241</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CES</td>
<td>0.84508364</td>
<td>0.9245764</td>
<td>1.00000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSCS</td>
<td>0.85900795</td>
<td>0.96112540</td>
<td>0.91209841</td>
<td>1.00000</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>0.63834694</td>
<td>0.52232218</td>
<td>0.59443579</td>
<td>0.46986282</td>
<td>1.00000</td>
</tr>
</tbody>
</table>

Source: Author’s Computation, (2019)
Table 4.1 report the correlation coefficient of pairs of variables used in the study. Correlation coefficient reported in table 4.1 showed that there is a positive correlation between all pairs of variables used in the study, which implies that pairs of variables move in the same direction, with the magnitude reflected reported statistics. From the table, it can be seen that gross domestic product move in the same direction with all capital budget variables with the highest magnitude reported for capital expenditure on administration, followed by capital expenditure on social community service, capital expenditure on economic services, while capital expenditure maintained the less magnitude of correlation with gross domestic product.

Table 4.2 Summary of Unit Root Test Result

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF statistics</th>
<th>1% critical value</th>
<th>5% critical value</th>
<th>ADF statistics</th>
<th>1% critical value</th>
<th>5% critical value</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>0.164629</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>-3.278389**</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>I(1)</td>
</tr>
<tr>
<td>CAD</td>
<td>-0.629252</td>
<td>-3.679322</td>
<td>-2.967767</td>
<td>-5.672122*</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>I(1)</td>
</tr>
<tr>
<td>CES</td>
<td>-1.464170</td>
<td>-3.679322</td>
<td>-2.967767</td>
<td>-6.971778*</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>I(1)</td>
</tr>
<tr>
<td>CSCS</td>
<td>-1.360962</td>
<td>-3.679322</td>
<td>-2.967767</td>
<td>-6.113089*</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>I(1)</td>
</tr>
<tr>
<td>CT</td>
<td>-2.823774</td>
<td>-3.679322</td>
<td>-2.967767</td>
<td>-8.029166**</td>
<td>-3.689194</td>
<td>-2.971853</td>
<td>I(1)</td>
</tr>
</tbody>
</table>

Note: *(***) connote significance at 1% and 5% significant levels respectively

Source: Author’s Computation, (2019)

Table 4.2 presents a summary of unit root test conducted in the study, in the quest to ascertain the degree of predictability of each of the variables included in the models of the study. The test was conducted at a level as well as at first difference. As reported in table 4.2 all the variables used in the study are not stationary at levels with the absolute estimates of the corresponding Augmented Dickey Fuller (ADF) test less than the critical values at 1% and 5% levels respectively. After transforming each variable into first difference, the test was conducted all over and the reported statistics revealed that all the series become stationary after first differencing, which connotes that there is enough evidence to reject the not stationary hypothesis after first differencing, in specific terms the reported test result showed that all the series are integrated of order one I(1), which implies that meaning all the series only retain innovative shock passed on them for short period of time after which they let go.

Table 4.3a Johansen Co-integration Test Result

<table>
<thead>
<tr>
<th>Eigen Value</th>
<th>Trace Statistics</th>
<th>5 Percent Critical Value</th>
<th>Probability</th>
<th>Hypothesized No of CE(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.692672</td>
<td>79.03425</td>
<td>76.97277</td>
<td>0.0345</td>
<td>None *</td>
</tr>
<tr>
<td>0.532724</td>
<td>45.99874</td>
<td>54.07904</td>
<td>0.2149</td>
<td>At most 1</td>
</tr>
<tr>
<td>0.376921</td>
<td>24.69535</td>
<td>35.19275</td>
<td>0.4188</td>
<td>At most 2</td>
</tr>
<tr>
<td>0.212531</td>
<td>11.44905</td>
<td>20.26184</td>
<td>0.4994</td>
<td>At most 3</td>
</tr>
<tr>
<td>0.156304</td>
<td>4.758979</td>
<td>9.164546</td>
<td>0.3109</td>
<td>At most 4</td>
</tr>
</tbody>
</table>

* denotes rejection of the hypothesis at 1% significance level
Trace test indicates 2 co-integrating eqn(s) at the 0.05 level

Source: Author’s computation, (2019)
The result presented in table 4.3a&b above is the summary of a co-integration test conducted in the study with respect to the model specified to analyze the impact capital expenditure on administration, economic service, social and community services, and transfer on economic growth measured in terms of gross domestic product. Trace statistics reported in table 4.3a revealed that there is strong evidence to reject the null hypothesis of no co-integration, in favor of one co-integration equation at 5% level of significance. This implies that though there is no short run equilibrium relationship between gross domestic product and capital expenditure variable, on the long run there is evidence of equilibrium association ship amidst the variables. To estimate the long run impact of each of the explanatory variable on gross domestic product, normalization was done on the gross domestic product, and the result presented in table 4.3b reflect that the impact of each of the variable on economic growth in the long run. As reported in table 4.4b capital expenditure on administration, economic service and social community service based exert long run negative impact on the gross domestic product, while on the long run capital expenditure on transfer exert a positive impact on economic growth measured in terms of gross domestic product. Evaluation of the level of significance of the estimated coefficient using standard error approach (which submit significance when the standard error is so low to be less than half the coefficient estimate) revealed that the long run negative impact of capital expenditure on administration is significant, while the negative impact of capital expenditure on economic services and that of social community service on gross domestic product does not show evidence of significance in the long run. Thus such negative impact on economic growth does not call for further empirical discussion. On the other hand on the long run capital expenditure on transfer exert a significant positive impact on gross domestic.

4.2 Impulse Response Analysis

Impulse response help traces the pattern of response of each variable in the VECM structure to innovative shock (impulses) in other variables over a specified period of time. In the context of this study, this section presents responses of all the variables with emphasis on the response of gross domestic product to innovative shocks in capital expenditure on administration, capital expenditure on economic services, capital expenditure on social and community services and capital expenditure on transfer over a period of ten years. The impulse response analysis was done with the residual one standard deviation option, which set the impulse to one standard deviation of the residuals, with a focus on a 10-period response. The result is present in graph and table forms below.

<table>
<thead>
<tr>
<th>Table 4.3b Normalized Equation Model 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
</tr>
<tr>
<td>1.000000</td>
</tr>
<tr>
<td>(109.255)</td>
</tr>
</tbody>
</table>

Source: Author’s computation, (2019)
Impulse response result presented in figure 4.1 above revealed responses of each of the variables to one standard deviation innovation in other variables. The first row of figure 4.1 revealed responses of gross domestic product to one standard deviation innovation in capital expenditure of administration, economic service, social community services and transfer respectively. The result should that in gross domestic product will increase in the second and third periods due to innovations in capital expenditure on administration but tends to decline continuously over time starting from four period over ten years. Gross domestic product decline following an innovative shock to capital expenditure on economic services from the second period through the six periods, but increases in the seventh period through and continue to increase over period 8, 9, and 10 respectively. As reported in figure 4.1 also gross domestic product responses to one standard deviation innovation in capital expenditure on social community services maintained a consistent positive increase over the 10 year period covered.

The response of gross domestic product to innovation in capital expenditure on transfer also trended within the positive domain though with the high rise in the first five periods. Without mincing words the impulse response result should that the response of gross domestic product to innovation in capital expenditure on social community services and transfer is positive for the ten year time horizon, while in the case of capital expenditure on economic service and gross domestic product only maintain positive response for the first two period, while positive response is only reported during the last 4 period for capital expenditure on transfer.
The dynamic impact of capital expenditure on gross domestic product for the long run impact of capital expenditure on gross domestic product is negative and insignificant, with the negative deviation innovations only during the second and third-period horizon after which the response remain negative. Secondly, it was discovered in the study that the dynamic impact of capital expenditure on economic service on gross domestic product is positive as reflected by its one period lag estimate. The long run impact of capital expenditure on gross domestic product is negative and insignificant, with the response of gross domestic product to it one standard deviation innovation shock is negative for the first seven periods and though the percentage forecast error of gross domestic product it explains increases over

5. Discussion

From estimation conducted in the study, the following discoveries were made first the study found that Capital expenditure on administration has a positive dynamic impact on gross domestic product represented by the influence of its one period lag estimate. On the long run, its impact on gross domestic product is negative and significant, with gross domestic product responding positively to its one standard deviation innovations only during the second and third-period horizon after which the response remain negative. Secondly, it was discovered in the study that the dynamic impact of capital expenditure on economic service on gross domestic product is positive as reflected by its one period lag estimate. The long run impact of capital expenditure on gross domestic product is negative and insignificant, with the response of gross domestic product to it one standard deviation innovation shock is negative for the first seven periods and though the percentage forecast error of gross domestic product it explains increases over

**Source:** Author’s Computation, (2019)
the time horizon. Thirdly the study found that capital expenditure on social community services exert a positive dynamic impact on gross domestic product as represented by the influence its one and two periods lag estimates. On the long run, the impact of capital expenditure on social community service is negative and insignificant, though gross domestic product responds positive and progressively to its one standard deviation innovation shock, as the percentage of forecast error in gross domestic product it explains increase over the time horizon starting from the second period. Finally, it was discovered in the study that the dynamic impact of capital expenditure on transfer is positive as reflected by both one period and two-period lag estimates. On the long run capital expenditure on transfer exert a positive impact on the gross domestic product. The response of gross domestic product to one standard deviation innovation shock in capital expenditure on transfer is positive though highest for the first five periods, as the percentage of forecast error it explains increase during the first five periods and later decline over the time horizon.

6. Conclusion and Recommendation

The result reflects that over the years capital budget implementation in the country has not transformed into sustained economic growth and looking forward if the pattern of implementation remains the same in the country there is no assurance that capital budget in the country will culminate into economic growth and development. The observed dynamic connection between capital budget implementation and economic growth in Nigeria is traceable to the relatively low level of capital budget in the country, laden with lack of maintenance culture which often results to dilapidation of capital overhead, not to mention myriad of abandon projects and/or program due to poor capital budget implementation framework. The study thus concluded that capital budget implementation in Nigeria has an impact on economic growth; though over time such dynamic impact has not been significant. In the same vein capital budget implementation in the country has not significantly contributed to economic growth of the country especially when analyzed in the long run context. Hence Nigeria government should put in place effective budget implementation framework that can help foster rapid economic growth that can be sustained to attain the desired level of economic development in the country, allocate more percentage of its capital expenditure to transfer as this will have a significant long run impact on the growth of the economy, and also increase the fraction of the total budget that goes to capital expenditure in the country to help maintain and sustain infrastructural development needed for improving productivity of the country.

7. References


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