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PUBLIC EXPENDITURE AND ECONOMIC GROWTH: JUSTIFICATION OF KEYNES HYPOTHESIS USING NIGERIAN DATA

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ABSTRACT

Keynes advocated for an increase in the size of government spending, as the surest and easiest way an economy can overcome recession. Government spending is an exogenous variable and should be used as a policy tool or instrument for growth. This study attempts to test this postulation made by Keynes on public expenditure being an exogenous variable in the growth-public expenditure model, and as a growth driver, ascertaining its applicability to the Nigerian situation. Secondary Data was sourced and analyzed using a Vector Error Correction Model. Pre-estimation test was done to determine the stationarity and co-integration status of the variables. The VEC result showed that there is a no long run causality between government expenditure and economy growth, thus refuting the applicability of this Keynesian hypothesis in Nigeria. However, the short run test for causality affirmed that capital expenditure caused growth in the short run while recurrent expenditure does not cause growth in both the long and short-run. The study concluded that Keynes postulation of public expenditure being used as a tool for economic growth is not justified for Nigeria in the long-run but can be accepted in the short-run. It was therefore recommended that for the economy

to experience rising growth over time which would spur them into economic development, government must increase the participation level of the private sector, and reduce its participation in economic activities to the barest minimum. Government should also channel its expenditure into ensuring peace and security of lives and properties, and provision of public goods.

Keywords: Growth Driver; Keynes hypothesis; Nigeria; Public spending; Vector Error Correction Model.

INTRODUCTION

Keynes (1936) advocated for an increase in the size of government spending. Government spending should be used as a policy tool or instrument for growth. According to Keynes, the easiest way an economy can overcome recession is through increase in government spending. As stated in the simple multiplier effect of change in government spending, an increase in government spending will geometrically spur the economy into growth. Spending made by government is seen as an exogenous factor in the growth-public spending model rather than endogenous factor as propounded by Wagner. Keynes made this assertion during the great depression of 1930s. Basically, public sector purchases should be geared towards driving growth of an economy as this would help boost the growth rate of the economy and catapult it to greater development.

Most developing countries of the globe operate a large size of government. Government generally performs economic and non-economic functions. In most advanced countries, governments spend more on transfer payment (Iyoha, 2007) while less developed countries (LDCs) focus more on social services to local dwellers. The funding of these services is captured under capital expenses and recurrent expenses. Maluleke (2017) asserted that income inequality is a determinant of economic responsibility of government, alongside other factors. Cameron (2007) identified a rise in demand for social security as one of the factors. Wu and Lin (2010) also see demand for other government services as another reason for expansion of government size. Provision of basic social amenities rests on the shoulder of government of these countries, financed either through tax-payers money mobilized domestically since tax matters in the domestic mobilization of funds (Obi and Ifelunini, 2019) for public spending, or through loans sourced from internal and external sources (Obi, 2015; Obi, Ifelunini and Kojo, 2016). Government expenditure has always been on the increase (Ukwueze, 2015; Obi and Ehiedu, 2020) and factors have been attributed to its persistent increase. Lindauer and Velenchik (1992) also identified factors like ideological debate, demographic factors, cost of financing public goods especially public infrastructures, among others. Other studies identified increase in the demand for public goods and need to achieve the countries' growth objectives (Keynes 1936; Adil, Ganaie, and Kamaiah, 2017). Cameron (2007) noted that countries with large population and many ethnic groups decentralize their spending pattern into different class of public goods He went further to affirm that government size theories focus on factors affecting demand for public services and its supply.

The Nigerian economy is driven mostly by the presence of government. Most economic activities are in the hands of government, only few are controlled by private sector. Nigerian citizens rely so much on government for provision of social amenities, education funding, provision of health facilities, employment, among others and this has implications for growth. Government spending in Nigeria is disaggregated into capital spending (CS) and recurrent

spending (RS) and, transfers payment (TP), which is further decentralised by levels of government and at the same time different categories with respect to provision of some public goods. The capital and recurrent spending (CRS) are further disaggregated into “administration, economic sector, social and community services and transfer” (CBN, 2020). In all, the size of recurrent expenditure is by far greater than capital expenditure and it has remained like that over the years, given the fact that governments partake in every aspect of economic activity and also provide basic infrastructures for its citizens. Based on this background, this study intends to ascertain if the large size of government in Nigeria had made significant impact on growth of the economy. Furthermore, it tends to ascertain the efficacy of public expenditure as a growth driver in Nigerian by testing Keynes’ postulate.

LITERATURE REVIEW

Review of Related Study on Disaggregated Public Spending

Several studies have been carried out on CRS and growth in Nigeria and other LDCs. Some studies affirmed positive influence on growth while others disapproved any positive influence, rather, affirming negative influence. Modele, Okafor, Onwumere and Ibe (2012) in a study on RS and growth concluded that a positive relationship exists between the two in Nigeria. A similar study done by Egbetunde and Fasanya (2013) also concluded a positive influence on growth, attesting to the study of Modele, Okafor, Onwumere and Ibe (2012). Iheanacho (2016) studied RS and growth. A short-run relationship between RS and growth was affirmed. For LDCs, Lim (1983) carried out a study and concluded that RS influences growth. On the other hand, Haque and Osborn (2007) did a similar study on 30 LDCs, disaggregating RS further. The result affirmed that public spending on education is associated with growth of these countries. Obi (2020) investigated on RS and growth and concluded that the components of RS (economic, social and community services) does not drive growth. This study was done using Nigeria data. Connolly and Li (2016) examined government and investment on growth of 34 OECD economies using GMM. They found that increased public social negatively affect growth. Alper and Demiral (2016) investigated public social spending on growth of 18 OECD economies using FGLS (feasible generalized least squares) estimators. The study concluded that social spending contributes to growth significantly. Nyasha and Odhiambo (2019) reviewed studies done on government size and growth over the years, focusing on their causal relationship. Four outcomes based on empirical analysis were found and they concluded that there is no clear-cut causal relationship

Empirical Review of Literature on Keynes Hypothesis

Several studies have been done on Keynes hypothesis. Some affirmed the efficacy of the hypothesis in the countries studied while others attest non efficacy of the hypothesis. A few of these studies are reviewed below:

Ansari, Gordon and Akuamoah (1997) subjected Keynes growth-expenditure hypothesis to test using ‘Granger and Holmes-Hultonanalysis’. The study was done on Ghana, Kenya and South Africa. Their findings did not support Keynes hypothesis for these countries. In a similar study, Gasti, Appiah and Gyan (2019) tested Wagner’s public expenditure law on Ghana using Granger causality. Their findings supported Keynes hypothesis rather than Wagner. Government spending is seen as an exogenous variable. This contradicted Ansari, et al (1997) study. Samudram, Nair and Vaithilingam (2009) investigated Keynes and Wagner hypotheses for developing countries using bound test (ARDL). Their result showed a bi-directional causality from growth and government spending, supporting both hypotheses in the long-run. Babatunde (2011) tested Wagner’s law with Nigerian data using bound testing.

Rather than support for Wagner, Keynes hypothesis was affirmed, at least in the long run. In a nutshell, this study differs from others through the method of estimation adopted, namely, Vector Error Correction Model (VEC). Although still on Nigeria, its findings will either affirm Babatunde (2011) or contradict it.

METHODOLOGY

This study is anchored on Keynes (1936) hypothesis on driving growth through public expenditure. The study adopted secondary sources of data from Central Bank of Nigeria online statistical bulletin, 2019. The scope of the study is on Nigeria as earlier mentioned, while that of time series data is from 1970 to 2017 (48 observations). Data of this sample size, if estimated using the appropriate estimation techniques, would no doubt give a robust and acceptable result. The data was estimated using VEC, after being subjected to preliminary tests (stationarity and co-integration). To further justify its findings, short-run causality test using Wald test was also conducted. The choice of VEC stems from its encompassing nature of a system analysis i.e checking the behaviour of variables as endogenous and exogenous variables. Variables used for the study include real gross domestic product (RGDP), capital expenditure (CAPEXP) recurrent expenditure (RECEXP) and gross fixed capital formation (GFCF). The study disaggregated government expenditure in order to ascertain which of the expenditures impact on growth or is the main growth driver.

Model Specification

For the purpose of this study, the model is specified thus;

$$RGDP = f(CAPEXP, RECEXP \text{ and } GFCF) \text{ ----- (1)}$$

Mathematically,

$$RGDP = a_0 + a_1CAPEXP + a_2RECEXP + a_3GFCF + U_i \text{-----(2)}$$

where;

RGDP = Real Gross Domestic Product

CAPEXP = Capital Expenditure

RECEXP = Recurrent Expenditure

GFCF = Gross Fixed Capital Formation

RESULTS

Unit Root Estimation

A close observation of the stationarity test in Table 1 shows that all the variables (LRGDP, CAPEXP, RECEXP and GFCF) are stationary at first difference, and none is stationary at levels, judging from their prob. values. The stationarity status of the variablesimplies that the result from the data is likely to be non-spurious. Having determined their stationarity status, it is necessary to check if a long run relationship exist among the variable using Johansen co-integration test. This is reflected in table 2.

Table 1

Stationarity Test

| Variables | Levels | Prob | First diff | Prob | Decision |
|-----------|-----------|--------|------------|--------|----------|
| LRGDP | 0.674865 | 0.9903 | -5.821800 | 0.0000 | I(1) |
| LCAPEXP | -2.192122 | 0.2118 | -7.165547 | 0.0000 | I(1) |
| LRECEXP | -0.466672 | 0.8884 | -7.308139 | 0.0000 | I(1) |
| LGFCF | 0.379272 | 0.9800 | -6.530609 | 0.0000 | I(1) |

Source: Author’s Regression Analysis, 2020

Cointegration Test

From Table 2, the prob. values of Trace statistic and Max Eigen Statistic revealed that there is only one (1) co-integrating equation. Their probability values (0.0027 and 0.0045) of the two

statistic (Trace and Max Eigen) was used to confirm the co-integration status of the variables. Therefore, we conclude that a long run relationship exists among the variables. Having confirmed the co-integration status, it is paramount to ascertain the long run and short run causality of the model using Vector Error Correction (VEC) and Wald Test short run causality. The VEC result is shown in Table 3.

Table 2

Johansen Cointegration Test

| | Eigen Value | Trace Statistic | 0.05 Critical Value | Prob value | Max.Eigen Statistic | 0.05 Critical Value | Prob. Value |
|-----------|-------------|-----------------|---------------------|------------|---------------------|---------------------|-------------|
| None | 0.533618 | 59.56308 | 47.85613 | 0.0027 | 35.08649 | 27.58434 | 0.0045 |
| At most 1 | 0.277466 | 24.47659 | 29.79707 | 0.1810 | 14.94957 | 21.13162 | 0.2924 |
| At most 2 | 0.171296 | 9.527023 | 15.49471 | 0.3189 | 8.643029 | 14.26460 | 0.3171 |
| At most 3 | 0.019034 | 0.883994 | 3.841466 | 0.3471 | 0.883994 | 3.841466 | 0.3471 |

Source: Authors Regression Analysis, 2020

Vector Error Correction Estimate

The VEC estimate in Table 3 showed that previous growth (lagged values of RGDP) positively influences current growth in the long-run, judging from the positive coefficients (0.276016 and 0.389189). Although the first lag of RGDP is not significant, its second lag is significant, with a probability value of 0.0026. The Capital expenditure (lagged values) negatively influences growth in the long run given the negative signs of their coefficients (-0.100737 and -0.021730). Though, the first lagged value is statistically significant, it is still not a growth driver. Recurrent expenditure, despite being positively related to growth, is not significant in explaining growth. Public investment, measured by Gross Fixed Capital Formation, is not statistically significant in explaining growth. Its lagged coefficients exhibit both a positive and negative relationship. Consequently, it can be inferred that government expenditure (capital and recurrent) is not a growth driver in Nigeria in the long-run. The coefficient of ECM is negative (-0.324877) and statistically significant given the prob. value of 0.0026. In other words, the model will return to equilibrium in the case of displacement from equilibrium. R^2 is 0.36, implying that 36% of systematic variation in the dependent variable (RGDP) is explained by the independent variables (first and second lagged values of RGDP, first and second lagged values of CAPEXP, first and second lagged values of RECEXP, first and second lagged values of GFCF).

Table 3

VEC Estimate

| Variables | Coefficient | Std. Error | t-Statistics | Prob |
|----------------|-------------|------------|--------------|--------|
| ECM (-1) | -0.324877 | 0.105941 | -3.066578 | 0.0026 |
| D(LRGDP(-1)) | 0.276016 | 0.157836 | 1.748750 | 0.0825 |
| D(LRGDP(-2)) | 0.389189 | 0.173216 | 2.246841 | 0.0262 |
| D(LCAPEXP(-1)) | -0.100737 | 0.031196 | -3.229209 | 0.0015 |
| D(LCAPEXP(-2)) | -0.021730 | 0.029891 | -0.726995 | 0.4684 |
| D(LRECEXP(-1)) | 0.041446 | 0.046004 | 0.900926 | 0.3692 |
| D(LRECEXP(-2)) | 0.005615 | 0.047055 | 0.119322 | 0.9052 |
| D(LGFCF(-1)) | -0.000758 | 0.012127 | -0.062473 | 0.9503 |
| D(LGFCF(-2)) | 0.002747 | 0.011756 | 0.233687 | 0.8156 |

 $R^2 = 0.36$ $R^2 = 0.19$

Source: Authors Regression Analysis, 2020

Short Run Causality Test (Wald Test)

The short-run causality test showed that in the short-run, capital expenditure cause growth judging from the probability value of 0.0054. This implies that though the first lag of capital expenditure does not drive growth in the long run, in the short run, it is a growth driver. The

short run Wald test on recurrent expenditure conforms with the long run causality results. Recurrent expenditure in the long run and short run does not cause growth in Nigeria. On the other hand, gross fixed capital formation does not drive growth in the short run, aligning with the result of longrun causality.

Table 4

Short-run Causality Wald Test for RGDP and Other Variables

| Variables | Test Statistics value (Chi-Square) | Df | Prob |
|-----------|------------------------------------|----|--------|
| CAPEXP | 10.43537 | 2 | 0.0054 |
| RECEXP | 0.061962 | 2 | 0.9695 |
| GFCF | 0.811776 | 2 | 0.6664 |

Source: Author's Regression Analysis, 2020

DISCUSSION OF FINDINGS AND CONCLUSION

From the analysis, it can be deduced that in Nigeria, government expenditure does not drive growth in the long-run. Although, the short-run causality showed a causal relationship between capital expenditure and economic growth, in the long-run, its impact becomes negative. The negative impact implies that Keynes hypothesis of driving growth of an economy through increased government spending is not applicable to the Nigerian economy. Its efficacy can only be in the short-run. In other words, Keynes hypothesis may only be effective only in the short run. In the long run, his hypothesis may not be applicable. This finding conforms with the study of Babatunde (2011) which affirmed that Keynes hypothesis is inapplicable to Nigeria. This current study has affirmed that previous growth is a determinant of current growth. As for gross fixed capital formation, its impact on growth is indecisive.

Having discussed the analyzed result, it is concluded that for the Nigeria economy, Keynes hypothesis is justified only in the short-run and not in the long-run. Its long-run effect is negative. This explains why most developing countries including Nigeria who depend so much on public sector driven economy rather than private sector driven economy or public-private partnership, are not experiencing sustainable growth. It is therefore recommended that for the economy to experience rising growth which will in the long run spur them into development, government must increase the participation level of the private sector, limiting its activities to regulation of the private sector activities, alongside ensuring peace and security of lives and properties. Government should encourage private investors as this will drive the economy to growth.

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