

GOVERNMENT DEBT AND ECONOMIC GROWTH IN WEST AFRICA

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ABSTRACT

sampled. The study covered 10 years, spanning from 2009 to 2018 and the panel data used was sourced from World Economic Outlook (IMF), World Bank World Development Indicators and other development agencies. The study used panel data estimation techniques and Generalized Methods of Moment (GMM) estimation technique. It was discovered that government debt and inflation exert a negative effect on economic growth in West Africa with their respective coefficients of -0.017 and -0.019. However, the negative effect was only significant for government debt with the probability value of 0.000, as against the probability value of inflation given to be 0.402. Also, trade openness and capital formation have a positive and significant effect on economic growth in West Africa to the tune of 0.083($p=0.028<0.05$) for trade openness and 0.219($p=0.006<0.05$) for capital formation. Also, it was discovered that the past level of GDP growth rate has a positive and significant effect on economic growth to the tune of 0.179($p=0.003<0.05$). It was concluded that the effect of government debt on economic in West Africa is statistically significant. Thus, it was recommended that government borrowings should be used for infrastructural development of the countries and not to aid consumption or directed to sectors that are not productive and capable of inducing investment.

Key Words: Government Debt, Economic Growth, Inflation Capital Formation, Trade Openness

Introduction

Over the past few decades, debt remains one of the germane macroeconomic problems confronting the stability and growth of African countries. This has generated many empirical studies with the intentions of ascertaining its causes, consequences and possible solutions to reduce debt, increase revenue generation and improve economic conditions. Economic conditions of countries in Africa is overwhelmed with insignificant human capital development, high population rate without a corresponding increase in economic activities which reduces per capital income, political instability, ethnicity issues, corruption, bad leadership and poor infrastructure ((Ehikioya, Omankhanlen, Osuma & Inua, 2020). This seems to reduce the development of the private sector and consequently affects economic growth.

It is the interest of every government to sustain fiscal prudence to achieve economic stability and sustainable economic development. However, the ever-increasing high rate of ill health, mass poverty, unemployment and illiteracy has required substantial levels of spending on economic and social development programs. This has resulted in budget deficits (expenditure exceeding revenue) and build-ups of debt. Developing nations across the globe borrow funds in order to close the budget deficit and to meet up with their basic financing needs to sustain economic growth. It is an important tool by which the government controls inflation and exchange rate amongst others since it forms a major part of the total

credit supply of the economy.

The issues of debt accumulating in West Africa are troublesome because many countries like Nigeria, Liberia and Ghana to mention just a few dedicate a substantial percentage of their yearly revenues to service debt thereby, affecting the development of other sectors because of limited resources. For example, Nigeria spent \$943 billion, \$1.36 trillion, \$1.66 trillion, \$2.23 trillion, and 2.14 trillion in 2016, 2017, 2018 and 2019 for debt servicing. In Ghana, a total of 9.6 billion interest payment was proposed in 2016 and this accounted for about 27% of internally generated revenue (Emmanuel, Alhassan, Bismark & Abdul-Nasir, 2018). This seems to be happening in other countries in West Africa like the Republic of Benin, Cote D'ivoire, Burkina Faso, Senegal, Guinea, The Gambia, Sierra Leone, Ghana, Togo and others.

Odejimi and Ozor (2018) noted that many African countries accumulate more debts for debt repayment. This does not only pose a danger to the growth of the economy; it might seriously affect the stability of the country. While economic theory advocates that a moderate level of government borrowing is economically right to finance government developmental and operational engagements, Oluremi (2015) noted that an increasing public debt might constrain the capacity of the government in terms of a more industrious investment in public health, infrastructure, education and other vital social and economic amenities. Thus, the magnitude of the state debts should be well aligned with developmental and operational aspirations.

The need for the economy of African countries to grow amongst the aggressive borrowing cycle has kindled the discussion on the relationship between government debt and economic growth. This is the crux of this study as it examines how the economic growth of West African Countries is affected by government debt. Over the years, several studies have been conducted in this regard with mixed findings. For example, Owusu-Nantwi and Erickson (2016) reported that economic growth is positively impacted by government borrowings, studies like Lucy, Collins and Ernest (2016), Bernardin, Agbemavor and Peter (2017), Emmanuel, Alhassan, Bismark and Abdul-Nasir (2018), Sami and Mbah (2018) and Odejimi and Ozor (2018) reported that government debt exerted a negative effect on economic growth.

The mixed findings and the increasing needs for countries in West Africa to understand the nitty-gritty of government debt and its management to improve economic growth gives the impetus for this current study. While some of these studies have been conducted in developed and developing countries, only a few studies have been conducted in West Africa. West Africa, as a region in the continent of Africa, has witnessed numerous challenges in terms of economic growth and debt management and it is only prudent to assess government debt and economic growth in the region.

The timing of the study is important given that countries in West Africa largely use public debt to finance their yearly budget. In recent years, the external debt of many countries in West Africa increased significantly because of the reduction in government revenues as oil prices reduced abruptly. Thus, financial institutions, policymakers, and individuals in West Africa need to comprehend the connection between government debt and economic growth. Therefore, this research study is conducted to help and understand this connection and the consequences thereafter. The remaining part of this paper is divided into four sections. Section two, three, four and five respectively covers literature review, methodology, results and discussion and conclusion and recommendations.

Literature Review

Nations across the globe borrow funds to close the budget deficit and to meet up with their basic financing needs towards economic growth. Thus, the borrowed funds are expected to improve the citizenry's standard of living through economic growth. By definition, Edlira and Arjeta(2020) defined public debts as the total of government borrowing from either the private sector within the nation or from abroad (outside the nation). Public debt embodies the overall state obligations towards its creditors, which are based on contracts. Public debt includes the total of amounts for which the government borrows to finance the budgetary position, which recurrently denotes the government expenditure.

Public debt is an essential alternative source of borrowing. In the view of Favor, Ideniyi, Oge and Charity (2017), public debt could be grouped in different forms which include: internal (domestic) and external (foreign) debt. Putanoi and Mutuku (2018) defined domestic borrowing as an instrument for managing the economy. It is an opportunity to bridging the domestic savings gap most especially in the face of deteriorating government revenues from domestic sources. In the same vein, Peter, Denis and Chukwuedo (2016) defined domestic debts as debts instrument dominated in local and not foreign currency and issued by the federal government. Domestic debt instrument consists of Treasury Bonds, Federal Government Development stocks and Treasury Certificates. Therefore, domestic debt can be aptly put as the gross liability of government including federal, state and local government transfer obligations to the citizens and corporate firms within the country.

Dal and Philip (2020) defined external debt as the amount owing at a given time of disbursement and unpaid contractual liabilities of the residents of a nation to non-residents to repay interest with(out) principal or to pay principal with(out) interest. The actual current and outstanding liabilities (debt liabilities) include the sum of arrears for both the interest and the principal. External debts become significant when the internal financial resources end up being inadequate to fund the public goods and services to boost the welfare of the populace and engender economic growth.

Audu (2018) described economic growth as the positive and sustained increase in the aggregate produced goods and services in an economy within a given period. When evaluated with the population of an economy, then economic growth can be ascertained in terms of per capita income (division of the aggregate production in a given period by the country's population) (Nwankwo, Kalu & Chiekezie 2017). A country's economic growth is long-term growth in the ability to supply progressively various economic goods to its population. This infers that economic growth is tantamount to a sustained upsurge in national output, presence of advanced technology, attitudinal, ideological and institutional adjustments and provision of a wider range of economic goods and services.

Base on the foregoing definitions of economic growth, it could be deduced that economic growth is simply a growth in the national income per capita. It involves the increase of the Gross Net Product (GNP), Gross Domestic Product (GDP), and National Income (NI) of an economy. The basic objective of economic policies in developing nations has been the promotion of economic growth and development and hence poverty reduction (Dal & Philip, 2020). Many African nations over the years have resorted to the use of public debt for financing economic growth. As noted by Ideniyi, Ogonna and Ifeyinwa (2016)

public debt, whether internal or foreign, are sustained by the government through borrowing in the international and domestic market to fund domestic investment and thereby stimulate economic growth.

Theoretical Review

This study is underpinned by classical theory of public debt and Keynesian theory of public debt. Classical theory of public debt presupposes that the responsibilities of the government should be lesser and that these responsibilities encompass only maintenance of internal law and order, defense from external terrorism, and carrying out some public works. This theory makes a comparison between the short-run effect of public debt on economic growth and the long-run of the same variable. Smith (1776), cited in Favour, Odo, Oge and Anoke (2017) are believed to be the major founders of this theory. They accentuated that in the short run, output is based on demand, therefore, government debt (revealing deficit financing) would have a positive impact on aggregate demand, disposable revenue and total output. In the long-run, if the decrease in public savings (because of greater budget deficit) is not fully balanced by an increase in private savings, national savings would reduce and total investment would decline; this would negatively affect GDP.

The theory denotes that government expenditures fulfill beneficial social functions which, in general, cannot or are unsuitable to be carried out by the private sector. To carry out these beneficial social functions, the government uses part of the social wealth that has been created, and from these views, government expenditures are unproductive. Implicitly, classical economists agree that government expenditures are usually wasteful, as they do not improve economic growth (Lucy, Collins & Ernest, 2016). The theory opined that savings and investments are the same things; stating that the equivalence of savings and investment is formed spontaneously without the influence of any equilibrating device like the changes in interest rate (neoclassical economics) or the changes in income through the operation of the multiplier (Keynesian).

This theory has been criticized in numerous ways because of some limitations. Firstly, the analysis between the short and long-run effects of debt ignores the fact that lengthened recessions may decrease forthcoming output, which means that operating fiscal deficits (and increasing debt) may have a positive impact on output in both the short and the long run (Donayre & Taiwan, 2017). The relevance of this theory to the study is based on the proper clarification of the relationship between public debt and economic growth. The theory affirmed that spending excesses on war would not positively impact economic growth, which is agreeable, especially in most developing countries, like Nigeria, who fight terrorism.

Keynesian theory of public debt was established by John, M. Keynes (1936). One of the key suppositions of this theory is that budget deficit influences main macroeconomic matrices. Keynes (1936) accentuated that households react to a rise in present disposable income which is equivalent to the tax cut, partly with more preferred personal savings, and partly with more consumer demand, and because of this rise, anticipated national savings decreases. This denotes that private savings reduce government savings. That is to say, public debt cannot be considered nor treated the same way as private debt. Public debt can be owed perpetually, while private debt must surely be paid. Contrary to the classical theory of public debt, the theory affirmed that huge public debt is a national asset rather than a liability, and that balanced deficit spending is essential to the economic growth of the countries (Ahiborn & Schweickert, 2016).

This theory has been laced with criticisms. Stella (2015) debated that the theory did not segregate between productive and unproductive expenditure as the classical. Another criticism is that monetary inflation or deficit spending eradicates or even significantly lessens unemployment (Sami & Mbah, 2018). The relevance of this theory to the study is hinged on the fact that it related public borrowing with deficit financing and asserted that government should borrow for all commitments so that efficient demand in the economy would rise, which will cause increased employment and production. The theory defended the fact that borrowing for consumption was as vital as borrowing for investment in productive goods because consumption expenditure influenced investment to go up.

Empirical Review

A lot of studies have been conducted in this context. For example, Halima (2015) performed a study that examined the effect of external public debt on economic growth in four East African countries. Countries included were Kenya, Tanzania, Uganda, and Rwanda. The study used panel data from 1981 to 2014. The data was analyzed using the fixed effect and the random effects model estimation techniques. Results showed that external debt had a negative effect on economic growth in East African Countries. Domestic debt, on the other hand, had no significant effect on economic growth. Also, capital stock had a positive relationship with economic growth. However, macroeconomic factors such as real interest rate, inflation rate, and exchange rate did not have a significant effect on economic growth.

Baaziz, Guesmi, Heller and Lahiani (2015) carried out a study that evaluated the dynamic relationship between accumulated public debt ratio and real GDP growth in the South African economy over the period of 1980-2014. The study used two macroeconomic control variables; inflation rate and Openness trade. The study affirmed that the link between public debt and real GDP growth was dependent on the level of indebtedness of the country. The scholars further opined that public debt in South Africa becomes an impediment to economic growth if it crosses the limit of 31.37% of GDP.

Hussain, Haque and Igwike (2015) undertook an empirical study that examined the connection between economic growth and debt, for Sub-Saharan Africa. Employing panel data regression to investigate the impact of debt on economic growth in 48 countries of Sub-Saharan Africa from 1995 to 2012, significant evidence of Granger causality between debt and economic growth in 8 out of the 48 sub-Saharan countries during the period of study was found. The data used was sourced from the World Development Indicators (WDI) from The World Bank. Also, the relationship between debt and economic growth rate in Granger causality and Dynamic Arellano-Bond panel data estimation frameworks was carried out; and results stated that there existed a negative correlation between the two variables (Debt and GDP), which confirmed the findings of earlier versions of the models.

Lucy, Collins and Ernest (2016) carried out a study that determined the impact of government debt on the economic growth of Ghana, adopting the methodology of the simple Ordinary Least Squares with data spanning from 1990 to 2015. Secondary data was sourced from the Ministry of Finance (MOF) or Treasury Latest actual data: Government Finance Statistics Manual (GFSM), Ghana and World Bank. The research findings uncovered that there was a negative relationship between debt (domestic and external) and growth in the economy of Ghana.

Paul (2017) performed a study that investigated the impact of external debt on economic growth of Nigeria. Data for the study were sourced from CBN Statistical Bulletin. The scope of the study ranged

from the period of 1985 to 2015. Data were analyzed using ADF unit root test, ordinary least square regression, Johansen cointegration and error correction test. Findings displayed that debt service payment had a negative and insignificant impact on Nigeria's economic growth, while external debt stock had a positive and significant effect on Nigeria's growth index. The control variables: external reserve and exchange rate had a positive and significant effect on growth. The ADF unit root test showed that all the variables were not stationary at levels but first difference. The causality test displayed unidirectional causality between external debt and GDP. Johansen cointegration test showed long-run link between external debt and growth index (GDP).

Sami and Mbah (2018) performed a study that scrutinized the association between government external borrowing and economic growth. Time series data for the period was from 1990-2015, and were collected from the World Bank and the Central Bank of Oman. The study employed the Autoregressive Distributed Lag cointegration approach and the error correction mechanism to determine the short-run dynamic nature of external debt and economic growth. The study showed that there existed a negative, but significant influence of external debt on economic growth in Oman. Furthermore, gross fixed capital was found to be positively significant in determining growth performance in Oman.

Bernardin, Agbemavor and Peter (2017) carried out a study that determined the effect of external debt on economic growth in Sub-Saharan Africa (SSA). The study used panel data regression for the analysis. The study employed annual data for 39 SSA countries from 1990 to 2013, and used the System Generalised Methods of Moments (GMM) estimation technique. The findings from the study uncovered that external debt negatively affected economic growth in SSA. Furthermore, it proved that the categorization of countries based on per capita income does not affect the external debt-growth nexus, neither does there exist a non-linear relationship between external debt and economic growth.

Lartey, Musah, Okyere and Yusif (2018) undertook a study that used 50 African countries from 1980 to 2015 to evaluate the effect of public debt on economic growth. The study utilized ordinary least square estimation technique for a static panel regression model, and the generalized method of moment estimation technique for a dynamic panel regression model for the analysis. The data used were obtained from the World Bank World Development Indicators, World Economic Outlook (IMF) and other development agencies. The outcome of the analysis gave credence to the fact that there existed a significant negative relationship between public debt and economic growth. The results also proved that the relationship between public debt and economic growth was non-linear.

Odejimi and Ozor (2018) carried out a study that evaluated the effect of debt on economic growth in West Africa. The study employed panel data from 1970-2011, for four models. The first, used the fixed and random effect regression based on the Ordinary Least Square; the second, used the 2SLS and, the third and fourth used the GMM estimation techniques. Part of the secondary data used was gotten from the World Bank. The results showed that debts did not have significant effect on growth in the selected West African countries with coefficients of (0.00267) and (0.00153) respectively; but upon addition of the year variable to control for time fixed effects, debt was found to have strong effect at 1% level of significance on growth with coefficients of -0.010 and -0.0154 respectively. The negative sign indicated an inverse relationship; that is, the higher the debt stock, the lower the growth rate.

Lerato (2019) performed a study that employed auto regressive distributive lag model (ARDL) to

investigate the relationship between foreign debt and government debt on economic growth in South Africa from 1980 to 2018. Secondary data used in the study were sourced from the South African Reserve Bank from 1980 to 2018. The results unveiled that there was a positive relationship between foreign debt, investment and economic growth, while a negative relationship was observed between government debt, expenditure and growth. Furthermore, the findings of the study revealed that sound debt management may lead to economic prosperity.

Alagba and Eferakeya (2019) carried out a study that determined the effect of public debts on economic growth of Nigeria for the period of thirty-eight (38) years, (i.e., 1981 to 2018). The secondary data employed were sourced from Central Bank of Nigeria Statistical bulletin and Debt Management Office. The data were ordered and examined using ordinary least square regression. The findings showcased that the domestic debts of the Federal government of Nigeria was positive and statistically significant to economic growth of Nigeria, while foreign debts contributed less to the economic growth of the country. Also, cost of debts servicing was significant and had a negative effect on economic growth. Uniqueness for the current study lies in its coverage, as it covers the whole of West Africa.

Ehikioya, Omarkhanlen, Osuma and Inua (2020) undertook a study that used the Johansen Co-integration test and system Generalized Method of Moments (GMM) to evaluate the dynamic linkage between external debt and economic growth in 43 African countries over the period of 2001–2018. The study used data from World Development Indicators (WDI) as published by the World Bank and the World Economic Outlook database as provided by the International Monetary Finance (IMF). The study gave credence to the fact that the importance of external debt could be short-lived due to its misapplication. The result unveiled a long-run equilibrium association between external debt and economic growth in Africa. The result demonstrated that beyond a specific capacity, the short-run converged to equilibrium in the long-run and external debt would have a deteriorating impact on economic growth in Africa.

Methodology

Quantitative research design method was adopted because the study fell under positivity research philosophy. The population covered all the seventeen countries in West Africa, out of which 5 countries (Nigeria, Republic of Benin, Cote D'ivoire, Burkina Faso, Senegal, Guinea, The Gambia, Sierra Leone, Ghana and Togo) were selected randomly. The study covered 10 years, spanning from 2009 to 2018 and the panel data used was sourced from World Economic Outlook (IMF), World Bank World Development Indicators and other development agencies. Panel data was considered because it allows for extension of observations and for the control of unobservable influences that might affect the regression estimates. The dependent variable, economic growth, was captured with Real Gross Domestic Debt (RGDP) while the independent variable was captured with external debt as a percentage of GDP. The study adapted the model used by Yosra, Khaled, David and Amine (2015) to examine public debt and economic growth in South Africa, where economic growth was made a full function of government debt with trade openness and inflation as the control variables. However, the model was modified to include the predictor variable and other variables that might influence economic growth. Table 1 gives the summary of the indices of the variables. Based on the objectives of this study, the functional and linear representations of the new models are given thus:

$$RGDP = \beta_0 + \beta_1 GDE_{it} + \beta_2 CAP_{it} + \beta_3 LAB_{it} + \beta_4 EXP_{it} + \beta_5 INF_{it} + \mu_{it} \dots \dots \dots (1)$$

$$RGDP = \beta_0 + \beta_1 RGDP_{it-1} + \beta_2 GDE_{it} + \beta_3 CAP_{it} + \beta_4 LAB_{it} + \beta_5 EXP_{it} + \beta_6 INF_{it} + \mu_{it} \dots \dots (2)$$

Where RGDP is Real Gross Domestic Debt, LAB is Labour, CAP is Capital, EXP is Export and GDE is Government Debt and INF is Inflation, $RGDP_{it-1}$ is the lag of the dependent variable, β_0 is the intercept, $\beta_1 - \dots - \beta_6$ are the slop parameters, subscript "it" represents the combination of time and individuality, μ_{it} means error term. The study used panel data estimation techniques for the static model in equation 1 and Generalized Methods of Moment (GMM) estimation technique for the dynamic model in equation 2.

Table 1: Definitions of Variables

Variables	Definitions	Measurements	A-priori Expectation
Gross Domestic Debt (RGDP)	This is a rise in an economy's actual level of domestic income	Real GDP growth rate	
Government Debt (GDE)	The total of amounts for which the government borrows to finance the budgetary position,	Debts as a percentage of GDP	-
Trade Openness (TRO)	This is the sum of all imports as well as exports of goods and services	Trade openness as a percentage of GDP	+
Capital (CAP)	This means the summation of all new capital goods in a given period.	Gross capital formation as a percentage of GDP	+
Inflation (INF)	Inflation is the annual percentage change in the cost of goods and services measured over a period of time	Consumer price in percentage	-

Source: Author's Computation (2020)

Results and Discussion

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
RGDP	100	2.06	5.77	-51.632	155
GDE	100	81.90	62.07	0.61	622
TRO	100	76.58	49.82	9.42	412
CAP	100	29.74	18.45	-3.83	298
INF	100	3.96	9.01	-15.72	26.78

Source: Data Analysis, 2020

The descriptive statistics show that the average value of real GDP growth rate is 2.06 for the countries sampled in West Africa, with a high deviation of 5.77. In the same vein, the mean and standard deviation values of the government debt, trade openness, capital formation (The proxy for Capital) and inflation are 81.90(62.07), 76.58(49.82), 29.74(18.45) and 3.96(9.01) respectively. The minimum and maximum values of real GDP growth rate for government debt, trade openness, capital formation (The proxy for Capital) and inflation -51.632(155), 0.61(622), 76.58(412), 29.74(298) and -15.72(26.78) respectively.

Table 3: Correlation Analysis

Variable	RGDP	GDE	TRO	CAP	INF
RGDP	1				
GDE	-0.079	1			
TRO	0.291	-0.190	1		
CAP	0.418	0.101	0.222	1	
INF	-0.073	0.071	0.007	-0.058	1

Source: Data Analysis, 2020

Table 3 reveals that GDP growth rate has a negative relationship with government debt and inflation. This shows an inverse relationship. In the same, growth rate of GDP has a positive relation with trade openness and capital formation, indicating a direct relationship. The correlation between government debt and trade openness is given to be negative while the correlation between government debt, capital formation and inflation is positive, reflecting a direct relationship. Also, trade openness maintained a direct relationship with capital formation and inflation while the relationship between capital formation and inflation is negative.

Table 4: Regression Results

Dependent variable: GDP growth rate

Variables	FIXED EFFECT			GMM		
	Coeff	Std. Err	Prob	Coeff	Std. Err	Prob
C	-0.501	1.044	0.771	0.514	0.914	0.638
RGDP _{it-1}				0.179	0.208	0.003
GDE	-0.017	0.003	0.000	-0.019	0.004	0.000
TRO	0.083	0.022	0.028	0.069	0.011	0.000
CAP	0.219	0.098	0.006	0.201	0.773	0.003
INF	-0.019	0.231	0.402	-0.017	0.002	0.544
R-Squared	0.4797			Wald Chi = 0.000		
F-Stat	55.0218			Arellano-bond AR (prob)=0.4848		
Prob (F-Stat)	0.000			Sargan Test (prob) 0.7227		

Source: Data Analysis, 2020

Table shows the results of the static and dynamic panel regression. For the static regression, the result revealed that there is enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimation and random effect estimation is not significant. Therefore, the most consistent and efficient estimation is given by the fixed effect. It reveals that government debt and inflation exert a negative effect on economic growth in West Africa with their respective coefficients of -0.017 and -0.019. However, the negative effect is only significant for government debt with the probability value of 0.000, as against the probability value of inflation given to be 0.402. Also, trade openness and capital formation have a positive and significant effect on economic growth in West Africa to the tune of 0.083($p=0.028<0.05$) for trade openness and 0.219($p=0.006<0.05$) for capital formation. The R-square statistics shows that about 47.9% of the systematic variation in economic growth can be jointly explained by the predictor and explanatory variables. The F-statistics along with the probability value given to be 55.0218 and 0.000 respectively shows that the model is fit.

To affirm the consistency of the static panel results given by the fixed effect estimation, Generalized Method of Moment (GMM) technique was used. It shows that the past level of GDP growth rate has a positive and significant effect on economic growth to the tune of 0.179($p=0.003<0.05$). The result also reveals that government debt and inflation exert a negative effect on economic growth in West Africa with their respective coefficients of -0.019 and -0.017. However, the negative effect is only significant for government debt with the probability value of 0.000, as against the probability value of inflation given to be 0.544. Also, trade openness and capital formation have a positive and significant effect on economic growth in West Africa to the tune of 0.069($p=0.000<0.05$) for trade openness and 0.201($p=0.003<0.05$) for capital formation. The Wald Chi-squared statistic for the system GMM model indicates the joint significance of the explanatory variables.

Table 5: Post Estimation Test

Hausman Test	Chi-square stat	Probability
Difference in coefficient not systematic	1.44	0.3891
Other Post estimation Test	Statistics	Probability
Wald test (panel homoscedasticity)	2.9902	0.5615
Pesaran test (No cross-sectional dependence)	4.550	0.6077
<i>Wooldridge test (No AR(1) panel autocorrelation)</i>	1.631	0.4016

Source: Data Analysis, 2020

Table 6 reported chi-square statistic of 1.44 and probability value of 0.3891. The result revealed that there is enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimation and random effect estimation is not significant. Therefore, the most consistent and efficient estimation is given by the fixed effect estimation. Also, table 5 shows that there is no evidence to reject null hypothesis of panel homoscedasticity, no cross-sectional dependence and no AR (1) panel autocorrelation. Hence it can be established in the study that assumptions of equal variance of residual terms, cross-sectional independence and absence of serial autocorrelation for the estimated panel-based model is valid.

Discussion of Findings

It was discovered that government debt has a negative effect on economic growth in West Africa to the tune of 0.017 ($p=0.000<0.05$). This reveals that the growth rate of GDP might decrease by 1.7% with just a 1% increase in government debt. The outcome gives credence to the a-priori expectation and also negates the tenets of the Keynesian theory of public debt. The theory states that in the face of budget deficit, government debt augmented domestic revenue and improve economic growth. The theory affirmed that a huge public debt is a national asset rather than a liability, and that balanced deficit spending is essential to the economic growth of the countries. The discovery shows that high-debt upsurge the repayment risk and consequently affects the ability of the country to invest in the sectors that might stimulate economic growth. A high debt level connotes that a reasonable portion of the domestic revenue will be used for repayment and consequently affects the robustness of the economic activities of the country. This study confirms the findings of Lucy, Collins and Ernest (2016), Bernardin, Agbemavor and Peter (2017), Emmanuel, Alhassan, Bismark and Abdul-Nasir (2018), sami and Mbah (2018), Odejimi and Ozor (2018). They reported that government debt exerted a negative effect on economic growth. However, it fails to corroborate the findings of Owusu-Nantwi and Erickson (2016). They reported economic growth in positively impacted by government borrowings.

In the same vein, the results show that the past level of the growth rate of GDP has a positive effect on economic growth in West Africa. The outcome shows that the past level of the growth rate influences the possible future growth. This implies that countries with sound economic activities are expected to perform better in the future. This outcome was in line with the findings of Emmanuel, Alhassan, Bismark and Abdul-Nasir (2018) and Bernardin, Agbemavor and Peter (2017).

Conclusion and Recommendations

The central objective of this study was to disclose the effect of government debt on economic growth in West Africa. 10 countries were sampled for 10 years and analysis was carried using static panel of fixed effect estimation and dynamic panel of GMM. Based on the most consistent and efficient estimation given by the fixed effect estimation, it was concluded that the effect of government debt on economic in West Africa is statistically significant. Specifically, it was established that government debt could engender decrease in economic growth and that the past levels of GDP of countries in West Africa could affect their possible future growth. Thus, it was recommended that government borrowings should be used for infrastructural development of the countries and not to aid consumption or directed to sectors that are not productive and capable of inducing investment. Domestic revenues should be judiciously disbursed and used. This might reduce the reliance on borrowings to finance capital projects.

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