Innovations

Budget deficit and macroeconomic performance in sub-Saharan Africa. Does income group matter?

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Abstract
This study examined the nexus between budget deficit and macroeconomics performance across SSA countries and also between the different income group countries in SSA as pointed out by the world bank, for the period between 1991 – 2018. Adopting the Pooled Mean Group (PMG) for the estimation of the variables, the findings revealed a long-run significant as well as a positive association between budget deficit and inflation, and also an insignificant but positive effect in the short run. A long-run significant negative effect between budget deficit and the exchange rate was reported, also a short-run insignificant positive. For the various income groups, budget deficit and inflation rate had a similar effect, whereas it was different between budget deficit and exchange rate. The study recommended the reduction of the budget deficit to reduce the inflation rate and also measures should be taken to stabilize the fluctuating exchange rate.
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GEL Classification: O11, E6, H72

1. Introduction

Many countries in sub-Saharan Africa (SSA) have seen accelerated growth for an extended period since the mid-1990s, making a clear break from their long-stagnant growth during the previous two decades. Nevertheless, the region faces significant challenges including reducing poverty, overcoming infrastructure bottlenecks, enhancing productivity and skill levels, and improving the business climate, among others (Wisdom, Apollos and Samuel, 2022).In the last decade, public debt levels in SSA countries have been rising and these rising public debt levels in the region arebecause of swelling budget deficits, leading to both an accumulation of domestic and external debts (Atingi-Ego, Timunoand Makuve, 2021).

For example, the unemployment rate and inflation rate between 2014 and 2018 in some SSA countries include South Africa (27.5%; 4.5%), Gabon (10.01%; 19.48%), Angola (17.06%; 20.19%, Nigeria (19.68%; 12.09%) respectively indicating a double-digit inflation rate and unemployment rate respectively for some countries (World Bank Data, 2020).In SSA, economic activities declined from 4.6 % in 2014 to 3.4% in 2015, because of the contribution of external shocks and domestic constraints (World Bank Data, 2020). Most oil exporters (World Bank Data, 2020) experienced this observed decline in economic activities.

Despite negative reviews on the budget deficit, theoretical examinations of this issue have resulted in many contrary views. An extensive literature (e.g. Kearney andMonadjemi, 1990; Smyth et al., 1995) has argued that government deficits may also have positive outcomes on economic performance. For example, in a Mundell-Fleming framework, itis argued that an increase in the budget deficit would induce upward pressure on interest rates, causing capital inflows and an appreciation of the exchange rate that will increase the current account deficit. The Keynesian absorption theory suggests that an increase in the budget deficit would induce domestic absorption and thus, import expansion, causing a current account deficit. Another contrary view is provided by Barro (1989), known as theRicardian Equivalence Hypothesis (REH). He states that shifts between taxes and budget deficits do not matter for the real interest rate, the quantity of investment, or the current account balance. In other words, theoretically, REH negates any relationship between the two deficits.

Moreover, other literature e.g. Allen (1977); Penati (1983); Bisignano and Hoover (1982); Branson (1985); Hakkio (1996); Stoker (1999); among others] has concentrated on the relationship between the budget deficit and the exchange rate. Some of these studies, as Bisignano and Hoover (1982), argue that deficits may appreciate or depreciate the exchange rate, depending on the relative importance of wealth effects and relative asset substitution effects.

These contradicting views have caused a need to examine the impact of budget deficit on macroeconomic performance in sub-Saharan Africa taking into cognisance the relevance of income group.

2. Literature Review

Sub-Saharan Africa in 2017 recorded an inflation rate of about 11.01 per cent, unlike the previous year which recorded about 11.18 percent. SSA average inflation fell from 11.01 per cent in 2017 to 8.48 per cent in 2018. Inflation double digit occurred predominantly in affected conflict SSA nationsand also in countries that are not members of a currency union. For African nations who are members of the West African Economic and Monetary Union and central African economic as well as monetary community, they have an inflation rate of about 2 percent, particularly the ones in the CFA zone due to their link with the euro.

There are two major exchange rate regimes in the Sub-Saharan African region which are flexible and pegged regimes. The francophone countries are characterized by pegged regimes whereas the Anglophone countries are that by flexible regimes. The volatility of the exchange rate has been increasing in Anglophone countries except for Guinea and Sierra Leone. The currency for Ghana and Nigeria significantly declined between the period 2014 to 2016 which was attributed to the global price decline in goods and crude oil. It was expectedthat the flexible currencies were going to appreciate for the period 2018 to 2019 due to a likely crude oil price and global commodity increase, together with rigid monetary and fiscal policies. The exchange rates of most francophone countries remained stable. Meniago and Eita (2017) noted that the Communautéfinancièred'Afrique (CFA) franc economies such as Togo, Benin, Senegal, Burkina Faso, Niger, Guinea-Bissau, Mali and Côte d'Ivoire experienced and appreciating euro, regardless of the dependence on primary commodities by the region. Exchange rates in SSA have been increasing. This increase is attributed to currency devaluation, inflation, political instability, economic recession and an increase in government debt in the region. Also, the increasing inflation rate in most countries like Ghana, Angola, and Zambia, was a result of the currency devaluation.

3. Theoretical Review

The Keynesian theory supports the idea that a budget deficit would create an increase in macroeconomic performance variables and a consequential increase in such variables as the inflation rate. Whereas the Neoclassical theory has a contrary view that budget deficit will result in an inverse relationship with macroeconomic variables. The Keynesian view is that public debt serves to pull up employment, thus reducing the unemployment rate and inducing higher participation. Or the neoclassical view that public debt sets the capital stock onto a lower path, thus decreasing the labour force and employment? (There is also the "neo-Keynesian" view that public debt financing government investment may dampen or advance the capital stock in the business sector, so that the public debt may matter little.)

Keynes opined that the government spend more money as well as cut taxes to reverse a budget deficit, which would boost consumer demand in the economy. it can be argued that Keynesianism still empowers government institutions with beneficial ideas and solutions hence its relevance in this study (Keynes, 1993).

4. Empirical Review

With a panel cointegration approach, Molocwa et al. (2018) studied budget deficits and their long-run relationship with inflation and gross investment among the BRICS nations for a period of 20 years (1997-2016). The findings depicted budget deficit having a positive relationship to inflation for the BRICS countries. In the African setting, Agoba (2019) studied Africa's deficit and inflation. Using 48 African countries and a panel regression technique, the study revealed fiscal deficit has a significant positive effect on inflation in Africa. Also, Chukwu (2013) studied budget deficit and its relationship with money growth and price level. Data was collected for the period between 2008 to 1971. The causality test of Toda and Yamamoto (1995) was employed and the findings revealed budget deficit influences money supply, also money supply influences price level. Furthermore, Jalil et al (2014) studied fiscal deficit and its effect on inflation. Data were obtained from Economic surveys and statistical books of Pakistan for a period of years (1972-2012). The ARDL estimation method revealed fiscal deficit has a significant positive effect on inflation.

With the use of Autoregressive Distributed Lag (ARDL), Bulawayo et al. (2018) examined the role of budget deficits and their contributory role to inflation in Zambia for the period 1991 to 2016. The findings showed a short-run significant impact of deficits on inflation, and no significant long-run relationship.

Fakhry (2016) investigated fiscal deficit and its impact on inflation in selected African countries for the period of 21 years (1994 - 2015) and the selected countries are South Africa, Kenya, Egypt, Mali and Nigeria. The study made use of the ARDL estimation and the findings revealed that the effect of inflation on fiscal deficit is specific to each country as well as period specific. Also, out of the five selected countries, Nigeria and South Africa were the only countries where inflation was positively affected by fiscal deficit while there was no evidence of short-run impact in Egypt but there was an inverse relationship in Kenya.

Using VAR-VECM and variance decomposition methods estimation technique, Epaphra (2017) budget deficit and its causal relationship with macroeconomic variables of Tanzania for a period between 1966-2015. The empirical analysis revealed a negative correlation between budget deficit and real GDP, but a positive correlation with money supply and inflation rate.

5. Methodology

This research adopted *the ex-post facto*methodology. The data used in this research were secondary, and it was sourced from African Development Bank Indicators, World Bank Development Indicators, as well as International Monetary Fund for the period of 28 years (1991-2018). The research variables were structured into dependent and independent variables. The variables are budget deficit (BD) as a percentage of GDP, inflation rate (INF) measured as consumer price index and official exchange rate (EXC). The estimation technique used was Pooled mean group (PMG) to show the relationship between budget deficit and the macroeconomic performance variables in sub-Saharan African countries. The countries are Namibia, Benin, Burkina Faso, Ethiopia Mauritius, Tanzania, Gabon, Equatorial Guinea, Uganda, Botswana South Africa, Rwanda, Angola, Togo, Nigeria, Lesotho, Kenya, Eswatini, Senegal,Ghana having a total of twenty SSA countries.

The model specification is as follows:

Model 1

Inf = f(Bd)

$$Inf_{it} = \beta_0 + \beta_1 Bd_{it} + U_{it}$$

Model 2

Exc = f(Bd)

$$Exc_{it} = \delta_0 + \delta_1 Bd_{it} + U_{it}$$

6. Data Analysis and Interpretation

Descriptive Statistics

Table 1 Descriptive Statistics Result

Variables	INF	EXCH	BD
Mean	24.97	352.14	-4.56
Median	7.26	97.35	-2.56
Maximum	4145.11	3727.07	21.80
Minimum	-9.62	5.51E-08	-557.50
Std. Dev.	208.97	530.01	34.61
Skewness	17.35	2.88	-13.18
Kurtosis	316.55	14.06	191.09
Jarque-Bera	2322123	3628.92	841662
Probability	0.00	0.00	0.00
Sum	13984.53	197198.20	-2552.6
Observations	560	560	560

Source: Author's Computation, 2020

From the descriptive statistics table, we have the mean values which also mean the average values of each variable.

For the inflation rate, the mean value is 24.97 per cent, 352.14 per cent for the exchange rate and negative 4.56 per cent for the budget deficit.

The same descriptive statistics table has the median values which show the middle values of each variable. The median value for the inflation rate is 7.26 and 97.35 per cent for the exchange rate and negative 2.56 per cent for the budget deficit.

There are also the minimum and maximum values which shows the lowest and highest values of each variable. For the inflation rate, the maximum value is 4145.11, while the minimum value is -9.62. The exchange rate has a minimum and maximum value of 3727.07 and 5.51 respectively while a minimum value of -557.50 and a maximum value of 21.80 for the budget deficit.

The measure of variation from the mean is depicted by the standard deviation and the values of each variable shown in the table.

The inflation rate has a standard deviation value of 208.97 per cent, an exchange rate of 530.01 per cent and 34.61 per cent representing the standard deviation value of the budget deficit.

The result shows that the variables are skewed positively, having a right tail that is long with values which are higher when compared to the sample mean except for budget deficit which is skewed negatively with a left long tail which has lower values compared to the sample mean.

The flatness or peakedness of the distribution of the series is measured by Kurtosis.

The Kurtosis value of the distribution indicates a positively peaked curve, the reason being that every variable has a value greater than 3 (316.55, 3628.92 and 191.09 > 3).

The Jarque-Bera statistics for the inflation rate, exchange rate and budget deficit are 2322123, 3628.92 and 841662.4, respectively.

Panel unit root test result

Table 2: Panel Unit Root Test Results

Variables	Statistical Values		Significance	Conclusion
BD	Levin, Lin and Chu t*	-3.78	0.00	I (0)
	Im, Pesaran and Shin W-stat	-5.11	0.00	I (0)
	ADF-Fisher Chi-square	96.77	0.00	I (0)
	PP-Fisher Chi-square	112.65	0.00	I (0)
INF	Levin, Lin and Chu t*	-7.03	0.00	I (0)
	Im, Pesaran and Shin W-stat	-7.50	0.00	I (0)
	ADF-Fisher Chi-square	134.77	0.00	I (0)
	PP-Fisher Chi-square	155.57	0.00	I (0)
LEXCH	Levin, Lin and Chu t*	-6.13	0.00	I (0)
	Im, Pesaran and Shin W-stat	-4.81	0.00	I (0)
	ADF-Fisher Chi-square	101.59	0.00	I (0)
	PP-Fisher Chi-square	96.62	0.00	I (0)

Source: Author's Computation, 2020

The result from Table 4.2 shows that budget deficit, inflation rate and log of exchange rate are stationary at levels which implies the series are integrated of order 0, while log of real gross domestic product is stationary at first difference which implies the series are integrated of order 1. It, therefore, shows that the series is integrated ina different order (i.e. having a combination of I(0) and I(1)). The probability level of the various tests shows that it is lower than the level of significance of one per cent (1%) which makes it highly statistically significant.

Table 3: Budget Deficit and Inflation Rate
Dependent Variable: Inflation Rate

	PMG	z	P>|z|	MG	z	P>|z|
Linear prediction						
BD	0.193*	(1.647)	0.100	3.573*	(1.648)	0.099
SR						
Linear prediction	0.516***	(7.149)	0.000	0.554***	(7.817)	0.000
D.BD	0.761	(0.823)	0.411	0.945	(0.990)	0.322
Constant	-12.722	(-1.574)	0.116	-13.427*	(-1.687)	0.092
R^2						
F						
Observations	540			540		

t statistics in parentheses
*p< 0.10, **p< 0.05, ***p< 0.01

Table 4 Budget Deficit and Exchange Rate
Dependent Variable: Exchange Rate

	PMG	z	P>|z|	MG	z	P>|z|
Linear prediction						
BD	-0.129***	(-4.487)	0.000	-0.089	(-0.440)	0.660
SR						
Linear prediction	-0.027**	(-2.097)	0.036	0.023	(0.788)	0.431
D.BD	0.003*	(1.740)	0.082	0.003*	(1.691)	0.091
Constant	0.084***	(2.611)	0.009	-0.064	(-0.807)	0.420
R^2						
F						
Observations	540			540		

t statistics in parentheses
*$p< 0.10$, **$p< 0.05$, ***$p< 0.01$

Table 5 Hausman test results

Model 1	Model 2
Prob> chi2 = 0.12	Prob> chi2 = 0.84

Source: Author's Computation, 2020.
NB. Null Hypothesis (H_0): Pooled Mean Group.
Alternative Hypothesis (H_1): Mean Group

Table 6 Budget deficit and Inflation rate in Upper Middle-Income SSA Countries

Variables	Long run		Short run	
	Coefficients	P>/z/	Coefficients	P>/z/
Bd	0.171	0.346	0.307	0.013

Table 7 Budget deficit and Inflation rate in Lower Middle-Income SSA Countries

Variables	Long run		Short run	
	Coefficients	P>/z/	Coefficients	P>/z/
Bd	0.202	0.229	2.589	0.312

Table8 Budget deficit and Inflation rate in Low Income SSA Countries

Variables	Long run		Short run	
	Coefficients	P>/z/	Coefficients	P>/z/
Bd	0.277	0.360	-0.655	0.183

Table 9 Budget deficit and Exchange rate in Upper Middle-Income SSA Countries

Variables	Long run		Short run	
	Coefficients	P>/z/	Coefficients	P>/z/
Bd	-0.154	0.829	0.0004	0.722

Table 10 Budget deficit and Exchange rate in Lower Middle-Income SSA Countries

Variables	Long run		Short run	
	Coefficients	P>/z/	Coefficients	P>/z/
Bd	-0.067	0.015	0.006	0.139

Table 11 Budget deficit and Exchange rate in Low Income SSA Countries

Variables	Long run		Short run	
	Coefficients	P>/z/	Coefficients	P>/z/
Bd	-0.162	0.002	0.004	0.226

NB: Acceptable significant level is 10%.
Source: Author's Computation 2020.

Interpretation of Results
As stated earlier, the PMG estimator propounded by (Pesaran and Shin, 1999) is our baseline estimation technique. However, the results for the Mean group (MG) estimation method were also presented.
Table 4.3 and 4.4 depicts the Pooled Mean Group (PMG) and Mean group (MG) estimation results whereas table 4.5 depicts the Hausman test estimation result. The Hausman test was done to decide which estimation technique to use between PMG and MG.
Table 4.5 x-rays the Hausman test statistics with the corresponding p-values and the null hypothesis of a long-run homogeneity restriction is being tested against the hypothesis of the alternate form.
The Hausman test failed to reject the long-run homogeneity restriction, and supported the use of the Pooled Mean Group (PMG) with the probability values being insignificant at a 10 percent level of significance (Prob> chi2 is equal to 0.95, 0.12 and 0.84 respectively, > 0.10). This implies that the Pooled Mean Group (PMG) estimation technique will be used in the analysis and interpretation of data.

Research Hypothesis One (H_{01}): Budget deficit has no significant effect on Inflation in Sub-Saharan African (SSA) countries.

Long run Relationship

Table 4.3 shows the analysis and relationship existing between budget deficit measured as a percentage of GDP and the inflation rate of SSA countries. From the table, it's observed that a positive effect exists between budget deficit and inflation rate, which is confirmed by the BD coefficient value of 0.193. The implication is that for every one percent increase in the budget deficit, a resulting 0.193 percent increase in inflation in SSA countries will occur. Using a 10 percent level of significance, the result reported a significant effect given the value of 0.100. It, therefore, implies that the null hypothesis will be rejected and the alternate will be accepted, stating that a significant effect exists between budget deficit and the inflation rate of SSA countries. The Z statistic measures the number of standard errors that the coefficient is from zero. The standard error, therefore, measures the standard deviation of the coefficient and it shows how much deviation occurs from predicting the slope coefficient estimate. It, therefore, implies the existence of a long-run total deviation of 1.647 percent. The findings support the long-run positive effect Molocwa et al. (2018) reported existing link between budget deficit and inflation but contradict that of Ezeabasili (2012) who after employing the cointegration technique and structural analysis revealed budget deficit has a long-run negative with inflation.

Short run Relationship

Same table 4.3 shows budget deficit having a positive effect onthe inflation rate of SSA countries, which is confirmed by the BD coefficient value of 0.761. The implication is that a one percent increase in the budget deficit will result in a 0.761 percent in inflation of SSA countries. Using a 10 percent level of significance, the result reported an insignificant given the value of o.411. This simply means the acceptance of the null hypothesis that no significant effect exists between budget deficit and the inflation rate of SSA countries. Therefore, an insignificant positive effect exists between budget deficit and the inflation rate of SSA countries in the short run. It can also be observed that there is an existence of a short run deviation of 0.823 percent which is the z statistics value.

This finding contradicts that of Fakhry (2016) who using ARDL disclosed a negative effect between budget deficit and inflation, the same result as Jalil (2014) whose study was based on Pakistan.

Research Hypothesis Two (H_{02}): Budget deficit has no significant effect on the exchange rate in Sub-Saharan African (SSA) countries.

Long run Relationship

Table 4.4 shows the analysis and relationship existing between budget deficit measured as a percentage of GDP and the exchange rate of SSA countries. From the table, itis revealed that a negative effect exists between budget deficit and exchange rate, which is confirmed by the BD coefficient value of -0.129. It, therefore, means that a one percent increase in the budget deficit will result in a decrease in the exchange rate by 0.129 percent. Using a 10 percent level of significance, the result reported a significant effect with a value of 0.000. This implies the rejection of the null hypothesis and acceptance of the alternate saying that a significant effect exists between budget deficit and exchange rate in the long run. The existence of a long-run total deviation of -4.487 percent value was revealed by the z statistics. This finding contradicts the work of Brima (2015) who carried out a similar study in Sierra Leone, using VECM arrived at a positive and significant effect between budget deficit and exchange rate in the long run.

Short run Relationship

The same table 4.4 depicts a positive effect existing between budget deficit and exchange rate of SSA countries, which is confirmed by the BD coefficient value of 0.003. This simply means a one percent increase in the budget deficit will result in a 0.003 percent increase in the exchange rate of SSA countries. Using a 10 percent level of significance, the result revealed a significant effect with a value of 0.082. This implies the rejection of the null hypothesis and acceptance of the alternative that a significant effect exists between budget deficit and exchange rate in the short run. The existence of a short-run total deviation of 1.740 percent value was revealed by the z statistics. This finding contradicts the work of Brima (2015) who carried out a similar study in Sierra Leone, using VECM to arrive at a negative effect between budget deficit and exchange rate in the short run.

Upper Middle-Income SSA Countries
Table 4.6 shows the result of the budget deficit and inflation in upper-middle-income countries. The result revealed a long-run positive effect between budget deficit and inflation rate in the upper middle-income SSA countries which is evidenced by the coefficient value of 0.17. This implies that for every one percent increase in the budget deficit, the resultant effect would be a 0.17 percent increase in the inflation rate of upper-middle-income SSA countries in the long run. Using a 10 percent significance level,it was reported that an insignificant effect exists between budget deficit and the inflation rate of upper-middle-income SSA countries with the value of 0.346. The short-run result revealed a positive effect existing between budget deficit and inflation, which is evidenced by the coefficient value of 0.307. This implies that a one percent increase in the budget deficit will result in a 0.307 percent increase in inflation in the upper middle-income SSA countries in the short run. Using a 10 percent level of significance, it reported budget deficit has a significant effect onthe inflation rate in the short run with the value of 0.013.
Table 4.9 shows the result of the budget deficit as well asthe exchange rate. The findings revealed a long-run negative effect between the budget deficit as well asthe exchange rate, whichis confirmedthrough the value of -0.154. This implies that for every one percent increase in the budget deficit, the resultant effect would be a 0.154 percent decline in the exchange rate of upper-middle-income SSA countries. Using a 10 percent level of significance, it was reported the existence of an insignificant effect between budget deficit and exchange rate with the value of 0.829. The short-run result revealed a positive effect between budget deficit and exchange rate, evidenced by the

value of 0.0004. Using a 10 percent level of significance it was revealed an insignificant effect between budget deficit and exchange rate with the value of 0.722.

Lower Middle-Income SSA Countries

Table 4.7 x-rays the nexus between budget deficit and the inflation rate of lower middle-income SSA countries, both short and long run. It reported the existence of a long-run positive effect between budget deficit and inflation rate which is confirmed by the coefficient value of 0.20. This implies that for every percentage increase in the budget deficit, the resultant effect would be a 0.20 percent increase in the inflation rate of lower middle-income SSA countries. Using a significance level of 10 percent, a long-run insignificant effect between the budget deficit and the inflation rate was reported with the value of 0.23.

The short-run result showed a positive effect between budget deficit and inflation in lower middle-income SSA countries, which is confirmed by the value of 2.589. This depicts that for every one unit increase in the budget deficit, the resultant effect would be a 2.589 percent increase in the inflation rate of lower middle-income SSA countries in the short run. Using a significance level of 10 percent, a short-run insignificant effect between the budget deficit and the inflation rate was reported with the value of 0.312.

Table 4.10 x-rays the nexus existing between budget deficit and exchange rate of lower middle-income SSA countries, both short and long run. It reported the presence of a long-run negative effect onthe budget deficit and the exchange rate which is confirmed by the coefficient value of -0.067. This implies that for every percentage increase in the budget deficit, the resultant effect would be a 0.67 percent decrease in the exchange rate of lower middle-income SSA countries. Using a significance level of 10 percent, the budget deficit reported a long-run significant effect onthe exchange rate with the value of 0.015. The short-run result showed budget deficit has a positive effect onthe exchange rate of lower middle-income SSA countries, which is confirmed by the value of 0.006. This implies that for every percentage increase in the budget deficit, the resultant effect would be a 0.006 percent increase in the exchange rate of lower middle-income SSA countries in the short run. Using a significance level of 10 percent, a short-run insignificant effect between the budget deficit and the exchange rate was reported with the value of 0.139.

Low-Income SSA Countries

Table 4.8 x-rays the linkbetween budget deficit and the inflation rate of low-income SSA nations, covering both the short as well as long run. It reported the existence of an actual long-run positive effect between budget deficit and inflation rate which is confirmed by the coefficient value of 0.277. This implies that for every percentage increase in the budget deficit, the resultant effect would be a 0.277 percent increase in the inflation rate of lower-income SSA countries. Using a significance level of 10 percent, a long-run insignificant effect between the budget deficit and the inflation rate was reported with the value of 0.360.

The short-run result showed a negative effect between budget deficit and inflation in low-income SSA countries, which is confirmed by the value of -0.655. This implies that for every percentage increase in the budget deficit, the resultant effect would be a 0.655 percentage decrease in the inflation rate of lower-income SSA countries in the short run. Using a significance level of 10 percent, a short-run insignificant effect between the budget deficit and the inflation rate was reported with the value of 0.183.

Table 4.11 x-rays the nexus existing between budget deficit and exchange rate of low-income SSA countries, both short and long run. It reported the presence of a long-run negative effect between the budget deficit and the exchange rate which is confirmed by the coefficient value of -0.162. This implies that as the budget deficit increases by one percent, the exchange rate of low-income SSA countries decreases by 0.162 percent. Using a significance level of 10 percent, a long-run significant effect between the budget deficit and the exchange rate was reported with the value of 0.002.

The short-run result showed a positive effect between budget deficit and exchange rate of low-income SSA countries, which is confirmed by the value of 0.004. This implies that for every percentage increase in the budget deficit, the resultant effect would be a 0.004 percent increase in the exchange rate of low-income SSA countries in the short run. Using a significance level of 10 percent, a short-run insignificant effect between the budget deficit and the exchange rate was reported with the value of 0.226.

Discussion of Research Findings

The result of the PMG analysis for the budget deficit and exchange rate shows that in a long run situation, the research findings confirm with the neoclassical theory that a negative effect exists between budget deficit and the economy, whereas in the short run, the result is in line with the Keynesian theory stating that a positive effect exists between deficit and the economy. For inflation, the empirical findings conform to the Keynesian theory in both the long and short run.

Furthermore, the different income groups as categorised by the World bank were also analysed. For the inflation rate in the various income categories, the findings showed budget deficit had an insignificant positive effect on inflation in the long run. This implies that as the budget deficit increases, inflation in these income group countries in the long run increases as well, but its impact is insignificant. Whereas in the short run, the result showed that budget deficit positively and significantly affects inflation in upper-middle-income countries, positively and insignificantly affects inflation rate in the lower middle-income countries but negatively and insignificantly affects the inflation rate of the low-income countries.

The empirical evidence for the exchange rate for the various income groups revealed that a rise in the budget deficit will negatively impact the exchange rate of all the income groups in the long run. However, the significant effect is different for each income category. The result is significant for the lower middle- and low-income group while it is insignificant for the upper-middle-income group in the long run. In the short run, the findings showed that budget deficit has a positive and insignificant effect on the exchange rate in all the income group countries.
The policy implication of these findings is that a high budgetary deficit causes macroeconomic problems such as instability in the exchange rate and a high level of the inflation rate. Borrowing to finance the deficits by the government will tend to crowd out private investment spending and increase the interest rate. Also if financing the deficits by printing more money is what the government decides to do, it will only result in inflation in the economy. So, therefore, the best choice for the government to finance its deficits is to enhance its domestic revenue generation strategy and take control of its recurring expenditure while increasing developmental expenditure.

7.   Conclusion and Recommendation
This study looked at the budget deficit as well as its nexus with the macroeconomic performance of sub-Saharan African countries The estimation result revealed a positive and significant effect existing between budget deficit and inflation levels of SSA countries in the long run, whereas a positive and insignificant effect exists amid budget deficit as well asan inflation rate of SSA countries in the short run.Having empirically examined budget deficit and its effect on macroeconomic performance in SSA countries, the recommendations, which emanate from the study, are as follows:
- Since budget deficit leads to a higher inflation rate, the advice would be for the SSA government to reduce its recurring budget deficit size, by improving its domestic revenue mobilization through tax base expansion and other sources of revenue regeneration and also reduce the foreign borrowing.
- Measuresshould be taken by the SSA countries, aiming at efficient budget planning, supply of money and government spending through policy management between fiscal as well as monetary policy.
- The government of SSA countries should pay attention to the stabilization of its exchange rate even while experiencing budget deficits. They should avoid external borrowing to help stabilize the exchange rate.

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