
Macroeconomic Indicators and Economic Performance in Selected Sub Sahara African Countries: Panel Generalized Method of Moment Approach

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¹Department of Economics, Emmanuel Alayande College of Education, Oyo Nigeria. Being a Paper submitted to Bank Indonesia and Asian-Pacific Applied Economics Association International Conference, Bali, Indonesia.

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Received: 2018-07-04; Accepted 2018-08-29,

Abstract:

This study empirically examined the effect of macroeconomic indicators on economic performance of selected sub Sahara African Countries between 1990 and 2017. The study employed four variables: GDP growth rate, Inflation rate, Monetary policy rate and Exchange rate and panel unit root test using two criteria to test for stationarity, panel cointegration test was also conducted to test for long run cointegration between the variables employed and Generalized Method of Moment method of estimation was employed to check the relationships between the variables. The results of the panel unit root test result from the LLC and IPS methods shows that the order of integrations mixed with some of the variables being stationary at levels (GDPgr and INFL) and first difference (MPR and EXHR) at the same time. The result of Pedroni cointegration test indicated the bivariate long-run cointegration equation between the variables employed. The GMM result revealed that all explanatory variables accounted for 23% variation of Economic performance in SSA. However, the study made the following policy implications: More balanced but flexible approach towards the MPR should be embraced to allow more room for impressive economic growth in these countries. Macroeconomic policy decision is not enough to stimulate growth in the economy of any nation. The interplay of fiscal instruments and monetary instruments backed with political will of the government on genuine implementation of well-thought out programmes can be employed as the antidote to ensure that the macroeconomic objectives are achieved both in the short and long-run.

Introduction:

Macroeconomic indicators especially inflation, gross domestic product growth, exchange rate and Monetary policy rate stand central in economic governance. Policy-makers use them to assess their economies' health. Citizens evaluate politicians' performance using them as yardsticks. But these

indicators defy simple definition, and the formulae underlying them have varied across countries and over time. Particular choices have fundamental distributive consequences. This study sought to examine the effect of macroeconomics indicators of selected Sub Sahara African Countries (Angola,

Chad, Equatorial Guinea, Gabon Nigeria and Sudan). The main motive of selecting the above countries lies on the fact they are major exporter of crude oil in this region hence, making their economy a resemblance of one another.

The effect of macroeconomic indicators on economic growth is still an unresolved issue theoretically as well as empirically. Although the theoretical positions on the subject are quite diverse, the conventional wisdom is that volatility of macroeconomic indicators is a source of economic instability or stagnation. Empirical research, however, does not conclusively support the conventional wisdom. A few studies report positive and significant relation between macroeconomic variables and economic growth while several others find significantly negative or no relation between this indicators and growth in real output (Ubaka, 2016; Mustapha et al, 2017). In summary, these results suggest that the use of different methods, models, time frames and variables could affect the causality results and that causality results are varied across countries and even within each individual/group country. An extensive review of literature, presented in the next section, clearly indicates that empirical evidence on the effect of macroeconomic indicators on economic growth is at best mixed.

Literature Review:

Edwards (2001) examined the changing association between exchange rate regimes, capital flows and currency crisis in emerging economies. The study portrayed experience from policy controversies that emerged in Mexico, East Asia, and Russian and Brazilian crisis of the 1990s. The study concluded that given the appropriate economic conditions and policies, floating exchange rate can be effective and efficient. The issue with exchange rate policies is that no policy seems to be fool-proof as most developing economies still grapple with the optimum exchange rate policy to adopt whether floating or fixed exchange rate.

Taylor (2001) fell out the case for liberalized economic policies. The study established that

Argentina failed in maintaining the liberalized economic policies about capital flows and a firm currency. Argentina adopted an exchange rate policy based on freezing the exchange rate in the 1990s to curb inflationary trends. The import of this measure is to tie money supply and supply of credit to international reserves.

Mirchandani (2013) investigated the macroeconomic determinants of exchange rate volatility in India. The impact of various macroeconomic variables on exchange rate was subjected to statistical analysis using Pearson's correlation analysis. The study found out that exchange rate is in correlation with many variables such as interest rate, inflation rate and GDP growth has a bi-directional relationship. The study concluded that India Rupee has showed volatility over the years because India received capital flows in the midst of global uncertainty in 2009- 2011 as its domestic outlook was positive. With domestic outlook looking dismal, Rupee devaluation became inevitable as without stable capital inflow, the Rupee is expected to remain volatile, the study concluded. Conversely, Chit (2008) found a different result as the study on exchange rate volatility had adverse effect on investment, growth and trade. Schanabi (2009) also reached a conclusion that exchange rate volatility had effects on trade, investment and growth which is in agreement with the works of Schanabi (2009) who found adverse effect of exchange rate volatility on macroeconomic indicators.

In contrast to the work of Mirchandani (2003), Chit (2008) and Schanabi (2009) who found some level of relationship between exchange rate volatility and macroeconomic variables; Baxter and Stockman (1989) did not find evidence of exchange rate volatility impacting on macroeconomic aggregates under alternative exchange rate regimes. The same result was obtained by Sapir and Sekkat (1995) whose study found no appreciable effect of exchange rate volatility on trade investment and growth.

Oluwaseyi, Adesoye & Oluwakemi (2015) investigated the effect of exchange rate volatility on investment and growth in Nigeria from 1986-2014. The vector error correction method, impulse responses function, co-integration and Augmented Dickey fuller (ADF) test for stationarity were employed to capture interactions between the variables, The results confirm the existence of long-term relationship between exchange rate, investment, interest rate, inflation and growth. The study concluded that exchange volatility has a negative effect with investment and growth while exchange rate volatility has a positive relationship with inflation and interest rate in Nigeria.

Chigbu and Njoku (2013) assessed the impact of monetary and fiscal policies on economic growth from 1990- 2010 using data on Rediscount Rate(LNMRR), interest rate (LNIR), liquidity rate(LNLR), corporate income tax(CIT) and federal government budget which was regressed against gross domestic product (GDP). The study found and confirmed that fiscal policy measures exert greater effect than monetary policy measures on the level of economic development in Nigeria. The study concluded that interest rate and liquidity rate impacted negatively on the GDP but minimum rediscount rate, corporate income tax and federal government budget affect the GDP positively and that both monetary and fiscal policies measures are jointly statistically significant to level of economic growth in Nigeria.

Adeolu, Kehinde and Bolarinwa (2012) evaluated how fiscal/monetary policy affects economic growth in Nigeria. The study argued that curbing the fiscal indiscipline of government will make much more than enshrining fiscal policy rules in our statute books. The study concluded that there exist a mild long-run equilibrium relationship between economic growth and fiscal policy variables in Nigeria.

Amassoma, Nwosa and Olaiya (2011) examined the effect of monetary policy on macroeconomic variables in Nigeria for the period 1986 -2009 using the simplified ordinary least square technique. The

study found that monetary policy had a significant effect on exchange rate and monetary supply had insignificant influence on price stability.

Udude (2014) extended the time series analysis more than what Adeolu et al did in 2012, and investigated the affect of monetary policy on economic growth of Nigeria from 1981-2012 with the objective of finding out the impact of various monetary policy instruments(money supply, interest rate, exchange rate and liquidity ratio) in enhancing economic growth in Nigeria. The study adopted advanced econometric techniques were employed to test significance. The findings showed using vector error correction mechanism tests that only exchange rate exerted significant impact on economic growth in Nigeria while other variables did not. The study concluded that monetary policy did not impact significantly on economic growth during the period under review and that the ineffectiveness of monetary policy is hinged on the inadequacies of the policy instrument used in Nigeria as such instrument impedes its contribution to economic growth.

Hameed and Ume (2011) focused on the impact of Monetary Policy on GDP. In their words, GDP, no doubt, is affected by the Monetary Policy of the state. They studied the research papers of various authors in this regard to prove the Hypothesis and after in depth analysis by applying Regression Analysis technique, they observed that the relationship between the two exists. They used the past 30 year's data of Pakistan for driving the conclusion. Their study proved that the interest rate has weak relationship with GDP but the Growth in Money Supply greatly positively affects the GDP of an economy, obviously various unknown factors also affects the GDP. Growth in Money Supply has a huge impact on GDP. Their research study can further be used for developmental projects for the Growth of Economy, Quality improvements, Household production, the underground economy, Health and life expectancy, the environment, Political immunity and ethnic justice.

Antwi, Mills, Mills, and Zhao, (2013) mentioned that foreign direct investment (FDI) has been a vital source of economic growth for Ghana. FDI brings in capital investment, technology and management knowledge needed for economic growth. Their paper aimed to study the relationship between FDI and economic growth in Ghana from 1980 to 2010 using time series data. The GDP, GDP growth rate, GNI, Manufacturing Value Added, External Debt Stock, Inflation, Trade, Industry Value added and Foreign Direct Investment net inflows as percent of GDP (FDI ratio). They used the simple ordinary least square (OLS) regressions and their empirical analysis was conducted by using the annual FDI and other variables over the periods 1980 to 2010. They used annual data from IMF, International Financial Statistics tables, published by International Monetary Fund. The goal of their study was to determine the extent to which these variables are related. From this, they concluded that the independent variables GDP, GDPg, GNI, MVA, GDPc and TRA are all significant to explain the variation in FDI since their corresponding p-values of the t-statistic are less than 5 percent and thus have an influence of FDI in Ghana. Their findings embraced practical implications for policy makers, government and investors.

Pineda and Rodriguez, (2010) argued against a natural resource curse for human development. They found evidence that changes in human development, (1970 to 2005), proxied by changes in the Human Development Index, are positively and significantly correlated with natural resource abundance. While their results are consistent with those of other authors who have recently argued that natural resources do not adversely affect growth. They found strong evidence that natural resources have a positive effect on human development and particularly on its non-income dimensions. Their results from Latin America interactions showed that the positive impact of natural resources in this region is significantly smaller than that of the rest of the world. Their results contributed to a broader discussion on “resource curse” by showing that natural resources may be a blessing rather than a

curse for human development, basically through its effects on education and health rather than income.

Ugochukwu, Justina and Chukwunonso, (2015) examined the effect of Nigeria macroeconomic environment on the performance of national economy. The study Adopted data extracts from the CBN annual reports, SEC statistical bulletins and the NBS, the relevant macroeconomic variables selected for the study were subjected to the OLS regression analysis towards ascertaining the extent of relationship existing between the macroeconomic indicators selected and the nation’s growth level. Result obtained in the study showed that although a unique relationship exist between the country’s national currency exchange rate to a US dollar, inflation rates, monetary policies, and the extent or level of GDP growth the country has attained, the sustenance and continued maintenance of an upward growth remain a source of worry to Nigerians and national economists, considering the country’s unsolved problems of energy generation and distribution which in turn has undermined the performance of the industrial and employment sectors.

Ubaka (2016) examined how macroeconomic variables such as exchange rate, inflation and interest rate can affect economic growth in Nigeria whose economy depend heavily on earnings from crude oil (Petrol-Dollar). Data for the study were sourced from Central Bank Nigeria (CBN) statistical bulletin of various years using archival method. The study collated secondary data from 1999- 2014 which forms a times series data used to examine the post-Structural adjustment programme era on issues of volatility of macroeconomic variables on economic growth. The dependent variable(Real GDP) and the independent variables(exchange rate, inflation and interest rate were subjected to statistical analysis using the multiple regression technique where exchange rate, inflation and interest rate were regressed against GDP. The study found out that independent variables-exchange rate, inflation and interest rate could only explain 41.80% of variation in the dependent variables-economic growth proxy by

GDP growth rate. The Durbin Watson statistics of 1.418 shows auto-correlation among the residuals which were positively correlated. The study found Positive relationship between exchange rate and interest rate with regards to economic growth while inflation showed a negative relationship with respect to economic growth. However these relationships were not significant meaning their effect is negligible. The study concluded that macroeconomic variables of exchange rate, inflation and interest rate do not impact significantly on economic growth in Nigeria.

Mustapha, Mathew and Oluwaseun, (2017) examined the effect of macroeconomic indicators on economic growth of Nigeria between 1970 and 2015. Data was collected from 1970 to 2015 from World Bank database and National Bureaus of Statistics (NBS) on the six World Development Indicators (WDI), total Import, official exchange rate, broad money, inflation rate, total natural resources rents and foreign direct investment. The dynamic weighted least square (DWLS) was used rather than the dynamic ordinary least square (DOLS). The result of the analysis shows that imports of goods and services positively affect RGDP of Nigeria significantly, while other explanatory variables negatively affect RGDP significantly. Based on this result, we recommend that rather than closing boarder to imports of goods and services, we need to restructure the economy, so that, Nigerian made goods can compete favorably with the imported goods and services, thereby reduce importation naturally instead of forcefully halt importation

Methodology:

Employing extracted data of the countries Monetary Policy Rates, Inflation rates, exchange rates, and the GDP growth rates for the years 1990-2017 from the World Bank, Central Banks Statistical bulletins, and National Bureau of Statistics, the Generalized Method of Moment (GMM) regression analytical tool was deployed in activating the following model specifications estimated for this study:

Model Specification:

$$\text{Model 1: } \text{GDPGR}_{it} = \alpha + \beta_1 \text{EXHR}_{it} + \beta_2 \text{INFL}_{it} + \text{MPR}_{it} + \mu_{it}$$

Where:

GDPGR is GDP growth rate of each country proxy for economic performance

EXHR is Exchange rate of each country

INFL is inflation rate of each country

MPR is Monetary Policy rate of each country

U is disturbance terms

Presentation and Analysis of Results:

This section presents the data analysis and the empirical analysis from the estimations of the model. First to begin with, the section presents some descriptive evidence for the variables in the model. Second, the panel unit-root test using the two criteria, and then proceeds to examine the panel cointegration test, between each of the regressors and the dependable variable, having obtained the result the panel unit cointegration test, coefficients of the variables are estimated using the panel Generalized Method of Moment (GMM) method.

Descriptive Statistics:

In this section some of the relevant statistics of the variables are examined and reported. This typically focuses on such statistics as the mean, the standard deviation, the sign of Skewness, and the rest. The intuition behind this statistics is that some information about the characteristics of the variables overtime can be inferred.

The evidence from the descriptive statistics is reported in table 4.1 below. The table shows that, GDP growth rate averaged approximately 6.923437 with a minimum and maximum value of 24.70000 and 149.9730, while its standard deviation stood at 15.24922 approximately. For Inflation rate (INFL), Monetary Policy Rate (MPR) and Exchange rate (EXHR) the mean values are 76.8183, 9.550280 and 284.7772 respectively. Similarly, their respective standard deviations are 399.2312, 13.82979 and 249.8094 approximately. The result here indicates

significant deviation (fluctuation) on the path of Inflation and Exchange rates series and as denoted by the high standard deviation value. The pattern characteristic trend in the other remaining variables

presents similar outcome to that of the variables discussed here and thus similar interpretation can be given.

Table 4.1: Descriptive Statistics of the Variables

	GDPGR	INFL	MPR	EXHR
Mean	6.923437	76.81813	9.550280	284.7772
Median	4.489907	8.004539	8.096770	264.6918
Maximum	149.9730	4145.108	80.33333	733.0385
Minimum	-24.70000	-11.68611	0.000000	2.99E-08
Std. Dev.	15.24922	399.2312	13.82979	249.8094
Skewness	5.676973	8.274526	3.062386	0.199012
Kurtosis	49.72490	76.53193	13.54644	1.432094
Jarque-Bera	16184.90	39765.71	1041.181	18.31727
Probability	0.000000	0.000000	0.000000	0.000105
Sum	1163.137	12905.45	1604.447	47842.58
Sum Sq. Dev.	38833.96	26617387	31940.95	10421594
Observations	168	168	168	168

Source: Authors' Computation, 2018

The direction of Skewness is positive for the all other variables. The Skewness statistics indicates that all the series have on the overall been increasing for most of the period which the study covers. Similar, interpretation can also be given to other variables with similar Skewness statistics as those explained here.

Pairwise Correlation Analysis:

Having, obtained the some of the descriptive statistics for the variables, the study proceeds to observe the direction (i.e. sign) and magnitude of correlation between the variables in the model. The correlation analysis is meant to offer a glimpse at the nature of relationship among the variables in the model and thus be able to observe if there could be any multi-collinearity problem among the variables.

The result for the exercise of correlation analysis is reported in table 4.2 below in the form of a

Correlation matrix with the principal diagonal of the table indicating the correlation of each variable with itself.

The different correlation between the variables can be seen and interpreted by the coefficient of correlation of each variable in the table. Interestingly, a quick view of the table reveals that Inflation rate negatively correlated with GDP growth rate (values of -0.030012). Similarly, on the other hand, Monetary Policy rates and Exchange rates are positively correlated with GDP growth rates. The correlation coefficient between Exhr is highest and standing at 0.172970. This relatively high value gives some preliminary and intuitive information that international trade is strongly and directly correlated with economic performance. Surprisingly, it turns out that the correlation between Inflation rate and GDP growth rate is relatively poor thus suggesting that both variables are inversely linked.

Table 4.2: Correlation Matrix for the Variables

	GDPGR	INFL	MPR	EXHR
GDPGR	1.000000	-0.030012	0.134899	0.172970
INFL	-0.030012	1.000000	0.488913	-0.204637
INTR	0.134899	0.488913	1.000000	-0.045036
EXHR	0.172970	-0.204637	-0.045036	1.000000

Source: Authors’ Computation, 2018

The result from the correlation analysis presented in tables 4.2 above provides a glance into the possible effects or impacts which may be derived in the subsequent sections on regression and impact estimations. However, theoretically, the coefficient of correlation between each of the variable cannot be interpreted or used to infer the effects in the model.

Empirical Results and Discussion:

The fundamental thrust of this study is to empirically examine the macroeconomic indicators

and economic performance nexus and thus offer some illuminating evidence on the validity of the roles of monetary authorities for Sub Saharan African countries. As is conventional in empirical studies such as this, some data evaluation and testing analysis will be pertinent in order to ensure that the empirical estimates obtained from such that are empirically valid and reliable. Hence, as earlier stated in earlier section the first test exercise is the panel unit root test analysis which is presented in table 4.3 below:

Table 4.3: Panel Unit Root Test Results

Variables	Lin, Levine and Chu Test		Imp-Pesaran-Shin Test		Conclusion on the Order of Integration	
	Levels	1 st Diff.	Levels	1 st Diff.	Levels I(0)	1 st Diff. I(1)
GDPgr	-6.94207 (0.0000)	-10.5141 (0.0000)	-6.37409 (0.0000)	-11.3634 (0.0000)	Yes	Yes
INFL	-3.97525 (0.0000)	-7.89677 (0.0000)	-4.57708 (0.0000)	-11.8615 (0.0000)	Yes	Yes
MPR	-0.0318 (0.4987)	-9.15468 (0.0000)	-0.15675 (0.4377)	-9.18074 (0.0000)	No	Yes
EXHR	1.17183 (0.8794)	-6.74942 (0.0000)	-0.24798 (0.4021)	-6.84968 (0.0000)	No	Yes

Source: Author’s Computation, 2018.

The unit root test is carried out with constant and trend specifications for the respective series. The lag-selection was based on the default selection of the Akaike-Information Criterion (AIC).The table contains the LLC and the IPS test statistic at levels and first difference of the panel series. The numbers in the brackets represent the probability values of the estimate test statistic of the LLC and IPS test.

The unit root test result from the LLC and IPS methods shows that the order of integrations mixed with some of the variables being stationary at levels and first difference at the same time. In particular the stationarity of the general unit root process for the set of panel data series for the variables shows that they are all significant at least at the 5 percent level for the first difference of all the variables and thus the null hypothesis of unit root in the data cannot be upheld.

Panel Cointegration Test Result:

In view of the panel unit root test result, some empirical investigation on the long-run relationship in the model can be examined. Though the unit root test does not strictly satisfy the condition for embarking on a cointegration, doing this will help establish if any of the set of variables may be cointegrated. The most prominent and widely used panel cointegration test technique in the literature

has been that developed by Pedroni (2004). The Pedroni (2004) panel cointegration test is based on the general form of the Engel-Granger method.

The hypothesis tested in the Pedroni (2004) approach states that there is no cointegration for all the units or equations specified. The alternative states the reverse. Hence if the probability values of the Pedroni cointegration test statistic are less than 5 percent then the null hypothesis cannot be upheld.

Table 4.4: Pedroni Cointegration Test

Cointegrating Equations	v-statistic	rho statistic	PP-statistic	ADF-statistic
Model 1: GDPgr, INFL	-0.64593 (0.5258)	-6.64635 (0.0000)	-4.732858 (0.0000)	-4.762708 (0.0000)
Model 2: GDPgr, MPR	0.266230 (0.3950)	-7.886444 (0.0000)	-6.565217 (0.0000)	-6.618591 (0.0000)
Model 3: GDPgr, EXHR	0.061264 (0.4756)	-7.461506 (0.0000)	-5.071101 (0.0000)	-5.868433 (0.0000)

Source: Authors' Computation, 2018.

The result for the test for the respective equation specifications are contained in table 4.4 above. The hypothesis testing statistics are the v-statistic, rho statistic, PP-statistic and the ADF-statistic. Notice that each row in table 4.4 indicates the bivariate long-run cointegration equation. The first row investigates the long-run relationship between GDP growth rate and Inflation rate, followed by the second row which investigates the long-run relationship between GDP growth rate and monetary policy and subsequently models 3 examines the long-run relationship between GDP growth rate and exchange rate respectively. It can be seen from the table that the probability values for all the hypothesis testing statistic except the v-statistic are significant at the 5 per cent level for models 1,2 and 3. The outcome of the cointegration provides strong confirmation of the existence of significant long-run relationship between the variables in the model. In particular the result provides evidence suggesting that GDP

growth rate has long-run relationship with macroeconomic indicators. Hence, the null hypothesis of no cointegration cannot be upheld for the Pedroni cointegration test.

Long run Estimates:

Having established the fact that all of the explanatory variables in the model do have long-run relationship with the dependent variable it will pertinent to also examine the direction of and magnitude impact of the relationship between economic performance and the set of explanatory variables captured in the model. In this sense the aim is to obtain empirical estimates measuring the impact of regressors of on the dependent variable.

For this purpose the panel Generalized Method of Moment (GMM) is employed for the estimation. The GMM is a long-run parameter estimation method in which the steady state converging relationship can be evaluated and examined based on the parameter estimates obtained from the estimation exercise.

The result for the regression analysis is shown in table 4.5 below. The table contains the parameter estimates obtained from the panel GMM estimation approach.

In the table the values in the brackets are the probability values of the parameter estimates of the model. The last two columns to the right of the table show the conclusion on the sign and test of significance of the parameter estimates of the

variables. The negative or positive sign indicates negative or positive impacts of the explanatory variable on the dependent variable respectively. The significance of the estimated coefficients is tested from the probability value of the estimated coefficients. If the probability value of the estimated coefficient is less than 5 percent then the then the explanatory variable has a significant impact on the dependent variable. Hence the research hypothesis cannot be upheld.

Table 4.5: Estimation of the relations in Panel GMM Model:

Dependent Variable: GDPGR				
Method: Panel Generalized Method of Moments				
Date: 05/21/18 Time: 14:11				
Sample (adjusted): 1992 2017				
Periods included: 26				
Cross-sections included: 6				
Total panel (balanced) observations: 156				
2SLS instrument weighting matrix				
Convergence achieved after 4 iterations				
Instrument specification: C INFL(-1) MPR(-1) GDPGR(-1) EXHR(-1)				
Constant added to instrument list				
Lagged dependent variable & regressors added to instrument list				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.011673	3.965394	0.507307	0.6127
INFL	-0.002810	0.007153	-0.392863	0.6950
MPR	0.262705	0.239561	1.096612	0.2746
EXHR	0.105021	0.005034	2.090107	0.0383**
AR(1)	0.421971	0.081477	5.179029	0.0000***
R-squared	0.234127	Mean dependent var		7.292101
Adjusted R-squared	0.208598	S.D. dependent var		15.69500
S.E. of regression	13.96240	Sum squared resid		29242.28
Durbin-Watson stat	2.029344	J-statistic		28.93787
Instrument rank	9	Prob(J-statistic)		0.0000***
Inverted AR Roots	.51	-.09		

Note: ***, ** and * denotes asymptotic significance at 1%, 5% and 10% respectively. Values in parenthesis are the p-values of the parameter estimate.

Source: Authors' Computation, 2018.

From the result above, constant is positive related to Economic performance but it does not make any economic sense.

Inflation rate (INFL) was found to be inversely related to GDPgr this is in line with the finding of Ubaka, (2016). From the result, 1% increase in inflation rate would bring about 0.28% decrease in GDP growth rate however the result is not significant at 5% level of significance since the probability value of 0.6950 is greater than 5%. Hence, Inflation is not an important determinant of economic growth in the selected countries.

A positive relationship was found between MPR and GDPgr. The result was also not significant. However, from the result, it shows that 1% increase in MPR will lead to about 26.2% increase in GDP growth rate.

Exchange rate result from the table also conforms to apriori expectation. The result shows a positive relationship with GDPgr. From the result, it indicates that 1% increase in EXHR will lead to about 10.5% percent increase in GDPgr. The result was also significant with $P < 0.05$. Hence, EXHR is an important determinant of GDPgr in the selected countries. This result is not surprising since the selected countries rely heavily on the exportation of crude oil; generating larger percentage of their revenue via sales of oil to the foreign economy. Hence, increase in EXHR will increase GDPgr.

The R-square from the result shows that GDPgr is explained with about 23% of the explanatory variables and the result was conform by the adjusted R-square value of about 21%.

The J-statistics which shows the overall significant of the model shows a value of 28.93787 with $P = 0.00000$. This indicate that the overall model is significant since $P < 0.05$. The Durbin Weston value 2.029344 of indicates the absence of serial correlation.

The outcome of this study revealed that GDP growth rate proxy for economic performance and inflation rate, monetary policy and exchange rate proxy for macroeconomic indicators have

significant effect on economic performance of selected Sub Saharan African countries. The monetary policy and exchange rate shows a direct response to economic growth. Inflation rate of price volatility also show a negative relation with economic growth since price stability is an important macroeconomic objective of every nation.

The empirical results obtained from this study show some interesting empirical regularities and resemblance with previous studies. Specifically, the results here in some aspects support that of previous studies in this subject. Recent empirical studies in this strand of the literature have noted that the issue of macroeconomic indicators play an important roles on economic performance of a nation (Udude, 2014; Chigbu and Njoku, 2013 and Ubaka, 2016). In this regard, the result derived from the GMM estimation confirms this assertion.

Policies Implications:

As a result of the outcome of this study, the following policy implications were suggested:

1. More balanced but flexible approach towards the MPR should be embraced to allow more room for impressive economic growth in these countries.
2. Macroeconomic policy decision is not enough to stimulate growth in the economy of any nation. The interplay of fiscal instruments and monetary instruments backed with political will of the government on genuine implementation of well-thought out programmes can be employed as the antidote to ensure that the macroeconomic objectives are achieved both in the short and long-run.

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