

Empirical Analysis Of Exchange Rate Reforms And Nigeria's Economic Growth

Lyndon M. Etale (PhD)

Department of Accounting, Faculty of Management Sciences, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.

Oghenevwo P. Kpolode

Department of Accounting, Faculty of Management Sciences, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.

Adesewa R. Edoumiekumo

Department of Accounting, Faculty of Management Sciences, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.

Abstract

Nigeria is a developing economy that has employed different policies in order to boost her economy and foreign exchange rate one of the macroeconomic variables is not left out. Therefore this study extracted data from the National Bureau of Statistics ranging from 1970 to 2019 employing the ADF unit root test, the ARDL and the Bound test to know the impact of the exchange reforms on Nigeria's economic growth in the short run with help of E-views software. The findings revealed that inflation and exchange rate has being on the increase in the past 49 years, however inflation was statistically insignificant although exchange rate was statistically significant. The study also found out that exchange rate reforms has impacted positively on Nigeria's economic growth. The study therefore recommended that: Government should put relevant economic policies in place to curb the rise in inflation; The reforms employed by government thus far have improved the economy, therefore government should monitor the policies already put in place in order to continue to boost the economy; and The rising inflation should be tame by government in order to prevent it from affecting exchange rate negatively.

Keywords: Exchange rate, Inflation, Gross domestic product

Date of Submission: 06-01-2021

Date of Acceptance: 21-01-2021

I. Introduction

Every nation of the world strive to improve her economy, this cannot be achieved if proper economic policy to curb unemployment, inflation and other macroeconomic variable that help an economy to achieve a competitive edge and a balance of payment that is favorable to the economy is not put in place. Nigeria is not an exception to this, Rodrik (2008) one of the key variable that lead to poor economic growth is imprudent exchange rate management by stakeholder's saddle with the responsibility. Obi, Oniore and Nnadi (2016) cited CBN (2009) Nigerian economy is striving to become one of the twenty largest economies in the world by 2020 and the 12th largest economy by 2050, however this cannot be achieved if proper and enabling economic policy to moderate exchange rate, inflation and interest rate is not put in place. Obadan (2006) there are two common concept of exchange rate at connoted by research which are real exchange rate and nominal exchange rate. Real exchange rate (RER), as it connote, is a concept that measures prices of two commodities traded relatively (exports and imports) in relation to non-tradable goods such as commodities and services produced and consumed locally. The monetary concept which measures the price of two countries currency in known as nominal exchange rate (NER), as at the time of carrying out this study the exchange rate of naira in relation to dollar which is the major traded and used international currency was N1 to \$ 0.0026 approximate. Obi, Oniore and Nnadi (2016) cited Obadan (2006) also opined that nominal exchange rate is the number of unit of foreign currency that must be transferred to get a unit of domestic currency, in essence nominal exchange rate is the price of domestic currency in term of foreign currency. Amassoma (2017) cited Ajakaiye (2001) exchange rate plays an inevitable role in an economy which cannot be discarded, this is because it directly impact and influences the macroeconomic variables which in turn accounts for the reasons various stakeholders such as the monetary authorities and private sectors to mention but a few, seeks to ensure the stability in these variables.

Hussein, Abbas and Aidi (2018) one of the macroeconomic variables is exchange rate which is a tool economic planners, decision influencers including government used in monitoring her economy closely. Stakeholders in Nigeria and the government have continued to make relevant efforts to restore equilibrium/stability to the economy exchange rate that has been subjected to severe rate of volatility in recent years.

Fristedt (2016) investigated a conceptualized impact of exchange-rate regime effect the economic growth across 60 countries over the period 2000-2010 different economy, and revealed that the choice of exchange-rate regime has no significant explanatory power over economic growth, he therefore opined that the choice of regime may indeed effect growth indirectly.

II. Review of Related Literature

Theoretical Underpinning

Inflation Rate Theory

Akinsola and Odhiambo (2017) inflation is caused by too much money in the economic system to meet the active demand with respect to available goods and services supplied in the system. Inflation theory emanated from the classical school which has also been embraced by the modern school of thought, Totonchi (2011) holistically what leads to inflation in developed economy differs from that of developing economy such as Nigeria, developed economy believed inflation is propelled by too much money in circulation however, in developing economy inflation is not solely propelled by that too much money in circulation alone, they believed other factors such as depreciation in exchange rate, fiscal imbalances to mention but a few leads to it., therefore believed all this variables should be controlled. However Aiyagari (1990) asserted that even if inflation is lowered to zero is not going to add any value to the economy.

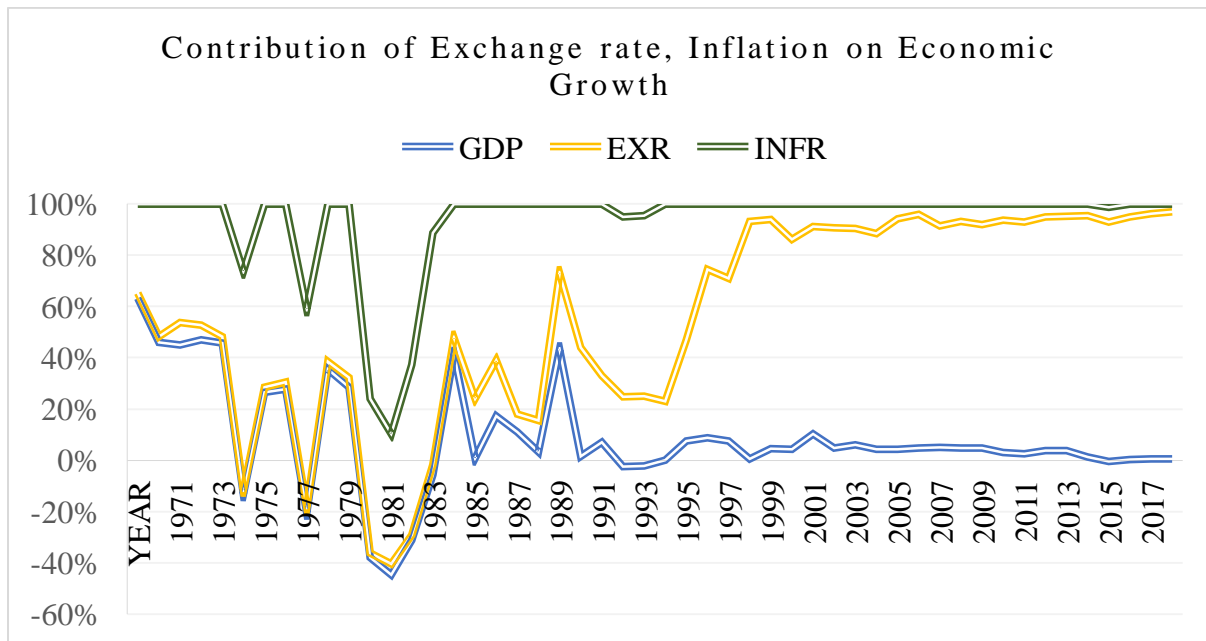
2.1.2 *Exchange Rate Theory*

Bingilar, Edoumiekumo, Kpolode and Nkak (2020) exchange rate play a great role in an economy cited Akujinma, Chijindu and Theodora (2017) every economy life-wire is determined by the exchange rate policy set in place and Nigeria as economy is not left out, the adoption of the of Structural Adjustment Programme (SAP) in 1986, has influenced local currency value in the international market. Prior to the introduction and adoption of SAP which made used of the floating exchange rate, in the sixties and seventies the fixed exchange rate was used by the regulatory system. Akujinma, et al., (2017) cited in Cassel (1981) propounded the purchasing power parity (PPP) theory, as a result of the failure of the fixed exchange rate system, the PPP states that the forces of demand and supply of the market should determine the prevailing exchange rate the rule the transaction.

2.2 Empirical Review

Etale and Ayunku (2016) investigated the relationship between interest rate and economic growth in Nigeria, by employing exchange rate and inflation as a control variables, the error correction model (ECM) approach with data ranging from 1985 to 2014 was employed, their study revealed that economic growth and interest rate are inversely related, although it was statistically insignificant.

Isola, Oluwafunke, Victor and Asaleye cited (2016) Obansa et al (2013) investigated the effect between economic growth and exchange rate in Nigeria economy between 1970 to 2010 and revealed exchange rate have a strong effect on the economy, this was supported by Azeez, Kolapo and Ajayi (2012) who investigated the impact of exchange rate volatility on macroeconomic performance in Nigeria with data ranging from 1986 to 2010. This is presented in a graphical form below with data extracted from Nigeria statistical bulletin.



Source: Authors computations, 2020.

The analysis showed a positive correlation from 1970 to 1980 i.e., decreased in the dependent variables also lead to a decreased in economic growth vis a vis an increase, Nigeria practiced pegged exchange rate system between this periods. However from 1993 till date there has been an inverse relationship among the variables, exchange rate increased has affected economic growth drastically. The exchange rate policy seems to be the life-wire of the Nigeria economy following the introduction of structural adjustment programme in 1986 which the mark the starting point of the depreciation of the local currency against the US dollar. With this in our minds, this study ascertains the impact of real exchange rate on gross domestic product and manufacturing capacity utilization of Nigeria from 1986 to 2015. The time series data we collected from the Central Bank of Nigeria statistical bulletin of 2015 passed the stationarity test and subjected to sensitivity analysis *visa viz*: Ramsey Reset specification, serial correlation, heteroskedasticity and multi-collinearity test. The ordinary least square estimation technique was applied in estimating the models developed. A long run relationship between exchange rate policy and economic growth was reveal by Johansen co-integration analysis. Focusing on impact assessment, the pairwise granger causality reveals that real exchange rate has significant impact on real gross domestic product and there is a positive but insignificant relationship between real exchange rate and real gross domestic product. Regardless of the positive and insignificant relationship between real exchange rate and manufacturing capacity utilization, real exchange rate significantly impacts manufacturing capacity utilization within the period studied. The Central Bank of Nigeria should put in place a strict foreign exchange policy control to ensure that the value of Naira against other currency is properly determined. Unethical practices by banks leading depreciation of the Naira should be investigated and erring operators sanctioned accordingly. Incentives, e.g. tax holiday and subsidies should be given to local manufacturers to improve output. An industrial blueprint should be put in place to allow a connection between agriculture and manufacturing to increase foreign exchange from exports.

2.3 Evidence of research gap

Akpan (2009) rethinking economic reforms and foreign exchange behavior in an emerging economy: evidence from Nigeria, examined the different economic reform that has taking place in line with the millennium development goals, however it was just a conceptual paper, no statistical analysis was carryout to support his evidence. scholars have different views on the exchange regime operated by Nigeria, while some (Obi, Oniore & Nnadi, 2016, cited Rano-Aliyu 2009, Miles, 2006, Reinhart & Rogoff, 2004, and Odusola & Akinlo, 2001) advocated that a floating exchange rate is more favorable to an economic growth. However Bailliu; Lafrance; and Perrault (2003) opined that fixed rates is more favorable to an economy.

The reviewed of related literatures thus far, the area of interest for this researched have not be covered to the best of our knowledge, some scholars have also have a contrary view on the issue, while some did not employ same variables and same approached as used in this study hence this has made us delve into this study to examined exchange rate reforms on Nigeria economic growth with data 1970 to 2019 obtained from Nigeria statistical bulletin.

III. Methodology

We adopted the ex-post factor to analysed secondary data selected from Nigeria statistical bulletin, this approached was to ensure data used are reliable as the researchers have no power to manipulate the data. Descriptive statistics and the ADF unit root test, the ARDL and the Bound test was adopted by the researchers using E-view. The hypotheses were tested using the analysed result from the study; the decision rule was to reject null the hypotheses if the calculated the p-value is less than 5% (0.05).

Model Specification

The model specification adopted for the study was premised on the theoretical foundation, in other to establish a nexus between exchange rate and inflation on economic growth in Nigeria with respect to the different reforms that has taken place. The model adopted for this work conforms to the one used by some other researchers such as Amor and Sarkar (2008), Babatunde, Abuh, Ekpenyong and Christopher (2016), Ismaila and Imoughlele (2015), and Etale and Uzakah (2020) as stated below:

$$GDP = f(INF, EXR)$$

Expressed in econometric form below with log transformation of some of the variables:

$$\text{Log GDP} = \alpha + \delta_1 \text{INF} + \delta_2 \text{EXR} + u$$

Where:

Log GDP = Log of gross domestic product

INF = Inflation Rate

EXR = Exchange rate

α = Constant term

u = stochastic error term

IV. Results of Data Analysis and Discussion

The data used in this study were extracted from the statistical bulletin of Nigeria.

4.1 Descriptive statistics

	GDP	EXR	INFR
Mean	3.937048	74.69460	18.27500
Median	4.430000	21.89000	12.77500
Maximum	25.01000	363.0000	72.84000
Minimum	-13.13000	0.550000	3.460000
Std. Dev.	6.360195	93.85916	15.62619
Skewness	0.104230	1.263218	1.938628
Kurtosis	5.118013	3.975730	5.953105
Jarque-Bera	9.436321	15.28110	49.48737
Probability	0.008932	0.000481	0.000000
Sum	196.8524	3734.730	913.7500
Sum Sq. Dev.	1982.152	431667.5	11964.71
Observations	50	50	50

Source: Authors computations E-view, 2020.

The above descriptive statistics showed that EXR has the highest mean 21.89000, median 21.89000 and maximum 363.0000 while inflation has the highest minimum value 3.460000, this supported Kara and Nelson (2002) that opined that exchange rate is influenced by inflation. However GDP has the lowest of mean, median and maximum values 3.937048, 4.430000 and 25.01000 respectively.

Dependent Variable: GDP

Method: Least Squares

Date: 08/04/20 Time: 10:31

Sample: 1 50

Included observations: 50

Table-1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXR	0.019613	0.008775	2.235088	0.0301
INFR	0.051538	0.043692	1.179590	0.2440
R-squared	-0.163927	Mean dependent var		3.937048
Adjusted R-squared	-0.188176	S.D. dependent var		6.360195
S.E. of regression	6.932833	Akaike info criterion		6.749592
Sum squared resid	2307.080	Schwarz criterion		6.826073
Log likelihood	-166.7398	Hannan-Quinn criter.		6.778717
Durbin-Watson stat	1.038028			

Source: Authors computations E-view, 2020.

The data presented in the table above showed that exchange rate reforms has impacted on Nigeria economic growth significant at 0.0301 which is less than 5% significant level, this was supported by the R-squared -0.163927 vis a vis the Durbin-Watson statistics 1.038028 which indicate that our variables are non-spurious this implies that our variable can be used for economic decisions while inflation is statistically insignificant 0.2440 with respect to GDP which is greater than 5% significant level, support Aiyagari (1990) who asserted that even if inflation is lowered to zero is not going to add any value to the economy.

Augmented Dickey Fuller (ADF) Unit Root Test

The ADF test is conducted below to know the levels of stationaries or non-stationarities at different stages among the variables, this will enables ascertain whether the regression for this study is spurious or not.

Table-2 Augmented Dickey Fuller (ADF) Unit Root Test

SERIES	ADF Test statistics	5% Critical Values	10% Critical Values	Order of integration	Remarks
GDP	-10.6286	-2.92378	-2.599925	(1)	Stationary at first dif.
EXR	-4.384464	-2.92378	-2.599925	(1)	-do-
INFR	-7.171561	-2.925169	-2.600658	(1)	-do-

Source: Authors computations E-view, 2020.

The above table (2) indicated that all the variables using the Augmented Dickey Fuller (ADF) unit root test were stationary at first differences, however at level non-stationarity exist. Since the above a stationary at 1(1) difference, we analyzed the ARDL below.

Dependent Variable: GDP
 Method: ARDL
 Date: 09/03/20 Time: 15:11
 Sample (adjusted): 1973 2019
 Included observations: 47 after adjustments
 Maximum dependent lags: 4 (Automatic selection)
 Model selection method: Akaike info criterion (AIC)
 Dynamic regressors (4 lags, automatic): EXR INFR
 Fixed regressors: C
 Number of models evaluated: 100
 Selected Model: ARDL(3, 0, 1)

Table -3

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP(-1)	0.235162	0.145357	1.617826	0.1136
GDP(-2)	0.121719	0.142973	0.851344	0.3996
GDP(-3)	0.207102	0.124590	1.662267	0.1043
EXR	0.003647	0.008345	0.437021	0.6644
INFR	-0.134831	0.058960	-2.286816	0.0276
INFR(-1)	0.119946	0.059701	2.009094	0.0513
C	1.231308	1.706826	0.721402	0.4749
R-squared	0.286480	Mean dependent var		3.281753

Adjusted R-squared	0.179452	S.D. dependent var	5.539221
S.E. of regression	5.017655	Akaike info criterion	6.200407
Sum squared resid	1007.074	Schwarz criterion	6.475960
Log likelihood	-138.7096	Hannan-Quinn criter.	6.304099
F-statistic	2.676678	Durbin-Watson stat	1.857028
Prob(F-statistic)	0.028035		

Source: Authors computations E-view, 2020.

The above table 3 showed the short run relationship with respect to our variables and implies that the overall model is statistically significant 0.028035, our model is selected through Akaike info criterion 6.200407, table 3 also indicate that inflation is significant 0.0276, which implies that if inflation is increased by 1% GDP will be reduced by 0.134831 in the short run.

Bound Test Table -4

F-Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	1.490491	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Source: Authors computations E-view, 2020.

Since the above (table 4) F-statistics 1.490491 is below the lower bound 3.1 at 5% level, implies that there is no long run relationship among the variables., However there is short term relationship.

4.2 Test of Hypotheses

The analysis conducted thus far (table 1 to 4) is to enable us arrive at the objective which is to examined exchange rate reforms on Nigeria economic growth with data 1970 to 2019 obtained from Nigeria statistical bulletin and the hypotheses posited in the study which state that:

- Exchange rate (EXR) has no significant impact on Nigeria Economic growth (GDP).
Table 1 showed that exchange rate reforms has impacted on Nigeria economic growth significant at 0.0301 which rejected our null hypotheses since the value is less than 5% significant level, table 2, opined that our data are stationary, table 3 showed that overall model is statistically significant at 0.028035, and table 4 showed there is no long run relationship among the variable however there is short term relationship.
- Inflation rate (INFR) has no significant impact on Nigeria Economic growth (GDP).
Table 1 depicted that inflation is statistically insignificant 0.2440 with respect to GDP which is greater than 5% significant level, support Aiyagari (1990) who asserted that even if inflation is lowered to zero is not going to add any value to the economy, this therefore accepted our null hypotheses.

V. Conclusion and Recommendations

We analyzed the impact of exchange rate reforms on Nigeria economic growth with data was extracted from statistical bulletin ranging from 1970 to 2019, ADF unit root test, the ARDL and the Bound test was carried out with the help of e-view, our findings revealed that inflation has being on the increase in the past 49 years. However the exchange rate reforms has impacted positively on Nigeria economic growth, this study is contrary to Odubogun (1995) who opined that the different reforms by government has affected the economy adversely with data ranging from 1960 to 1990.

We therefore recommended that:

- i. Government should put relevant economic policy in place to curb rise inflation;
- ii. The reforms employed by government thus far has improved the economy, therefore government should monitor the policies already set in place in order to continue to boost the economy; and
- iii. The rising inflation should be tame by government, if not is going to affect the exchange rate negatively.

Research Contribution

The study found out that inflation and exchange rate has been on the increased despite the later impact on Nigeria Gross Domestic Product, we also found out that exchange rate reforms has impacted on Nigeria economic growth positively. However this was contrary to Bailliu; Lafrance; and Perrault (2003) who opined that fixed rates is more favorable to an economy. The study supported (Obi, Oniore & Nnadi, 2016, Miles, 2006, and Odusola & Akinlo, 2001) advocated that a floating exchange rate is more favorable to an economic growth.

References:

- [1]. Aiyagari, S. R. (1990). Deflating the case for zero inflation. Federal Reserve
- [2]. Federal Reserve Bank of Minneapolis Quarterly Review, 14(3), 2–11.
- [3]. Ajakaiye, O. (2001). Impact of Exchange Rate Depreciation on Sectorial Prices” NISER Monograph Series, (1986 – 2000). Journal of Perspectives on Financing and Regional Development, 6(4), 489-502.
- [4]. Akinsola, F. A., & Odhiambo, N. M. (2017). Inflation and Economic Growth: a Review of the International Literature. Comparative Economic Research, 20(3).
- [5]. Akpan, L. P. (2009). Rethinking economic reforms and foreign exchange behaviour in an emerging economy: evidence from Nigeria. Global journal of humanities, 7(1), 71-83.
- [6]. Akpan, U., Kpolode, O. P. & Nkak, P. E. (2020). Implication of adopting a floating exchange rate: a pre and post analysis of Nigeria economic growth. The International Organization of Scientific Research.
- [7]. Amassoma, D. (2017). The nexus between exchange rate variation and economic growth in Nigeria. Journal of Entrepreneurship, Business and Economics, 5(1), 1-40.
- [8]. Amor, H. T., & Sarkar, U. A. (2008). Financial Integration and Real Exchange Rate Volatility: Evidence from South and South East Asia. International Journal of Business and Management, 3(1).
- [9]. Babatunde, A., Abuh, U., Ekpenyong, K. Y. & Christopher, E. (2016). Exchange rate and economic growth: The Nigerian Experience. International Research Journal of Finance and Economics. 153, 84-94.
- [10]. Bailliu, J., Lafrance R; & Perrault, J. F. (2003). Does Exchange Rate Policy Matter for Growth? International Finance, 6(3), 381-414.
- [11]. Bingilar, P. F., Edoumiekumo, A. R., Kpolode, O. P., & Nkak, P. E. (2020). Accounting implications of oil price, exchange rate and unemployment on economic growth in Nigeria. The International Organization of Scientific Research.
- [12]. Central Bank of Nigeria. (2020). History of Nigerian Currency. Retrieved <https://www.cbn.gov.ng/Currency/historycur.asp>, July 30th, 2020.
- [13]. Central Bank of Nigeria. (2009). 50 Years of Central Banking in Nigeria, 1958-2008. Retrieved <https://www.cbn.gov.ng/OUT/SPEECHES/0009/GOVADD4-5-09.PDF>, July 29th, 2020.
- [14]. Etale, L. M. & Ayunku, P. E. (2016). The Relationship between Interest Rate and Economic Growth in Nigeria: An Error Correction Model (ECM) Approach. International Journal of Economics and Financial Research, 2(6), 127-131.
- [15]. Etale, L. M. & Uzakah, T. (2020). Financial Accounting performance indicators and share price: A case study of Zenith Bank Nigeria PLC, Niger Delta Journal of Management Sciences, 1(1), 62-79.
- [16]. Ezenwakwelu, C. A., Okolie, P. I., Attah, E. Y., Lawal K. O. & Akoh, O. (2019). Exchange rate management and performance of Nigerian manufacturing firms. Academy of Entrepreneurship Journal, 25(4).
- [17]. Fristedt, S. (2016). Does the choice of exchange-rate regime effect economic growth. Retrieved
- [18]. https://scholar.harvard.edu/files/frankel/files/fmaxie_errgr_2019apr26.pdf, July, 29th, 2020.
- [19]. Hussein, I., Abbas, I. S., & Aidi, H. (2018). Exchange rate volatility and the Nigerian industrial sector performance. Saudi Journal of Economics and Finance, 2, 208-215.
- [20]. Ismaila, M. & Imoughele, L. E. (2015). Macroeconomic determinants of economic growth in Nigeria: A co-integration approach. International Journal of Academic Research in Economics and Management Sciences, 4(1), 34-46.
- [21]. Kara, A., & Nelson, E. (2002). The Exchange Rate and Inflation in the UK. Retrieved, <https://www.econstor.eu/bitstream/10419/84686/1/extmpcpaper0011.pdf>, June 29, 2020.
- [22]. Miles, W. (2006). To Float or Not To Float? Currency Regimes and Growth. Journal of Economic Development, 31(2)
- [23]. Obadan, M. I. (2006). Overview of exchange rate management in Nigeria from 1986 to date. Retrieved: <https://www.cbn.gov.ng/OUT/PUBLICATIONS/BULLION/GOV/2007/BULL%20JUL-SEPT06.PDF> 27th July, 2020.
- [24]. Obi, O. K., Oniore, O. J., & Nnadi, U. K. (2016). The Impact of Exchange Rate Regimes on Economic Growth in Nigeria. Journal of Economics and Sustainable Development, 7(12).
- [25]. Odubogun, K. (1995). Institutional reforms and the management of exchange rate policy in Nigeria. African economic research consortium, 36.
- [26]. Odusola, A. F., & Akinlo, A. E. (2001). Output inflation and Exchange Rate in Developing Countries: An Application to Nigeria. Journal of Development Economics, 39(2).
- [27]. Rano-Aliyu, S. U. (2009). Impact of Oil Price Shock and Exchange Rate Volatility on Economic Growth in Nigeria: An Empirical Investigation, Research Journal of International Studies, 1.
- [28]. Reinhart, C., & Rogoff, K. (2004). The Modern History of Exchange Rate Arrangements: A Reinterpretation, Quarterly Journal of Economics, 119, 1-48.
- [29]. Rodrik, D. (2008). The Real Exchange Rate and Economic Growth. Brookings Papers on Economic Activity, Economic Studies Program, 39(2), 365-439.
- [30]. Totonchi, J. (2011). Macroeconomic Theories of Inflation. International Conference on Economics and Finance Research, 4, 83-94.

Lyndon M. Etale (PhD), et. al. “Empirical Analysis Of Exchange Rate Reforms And Nigeria’s Economic Growth.” *IOSR Journal of Business and Management (IOSR-JBM)*, 23(01), 2021, pp. 32-38.