

# Impact of Exchange Rate Fluctuation on Economic Growth in Nigeria

Miftahu Idris<sup>1\*</sup> and Isaac Shuyur<sup>1</sup>

<sup>1</sup>Department of Economics, Faculty of Social Sciences, Taraba State University, P.M.B 1167 Jalingo; Nigeria.

\*Corresponding Author: [miftahu4real12@gmail.com](mailto:miftahu4real12@gmail.com)

## ARTICLE INFO

Received: 19 November 2022

Revised: 20 December 2022

Accepted: 26 December 2022

Online: 30 January 2023

### To cite this paper:

Miftahu Idris and Isaac Shuyur (2023). Impact of Exchange Rate Fluctuation on Economic Growth in Nigeria. *Asian Journal of Economics and Finance*. 5(1), 39-60. [https://DOI: 10.47509/AJEF.2023.v05i01.03](https://doi.org/10.47509/AJEF.2023.v05i01.03)

**Abstract:** This study examines the impact of exchange rate fluctuations on economic growth in Nigeria. The main type of data used in this study is secondary; sourced from Central Bank of Nigeria Statistical Bulletin of various issues. From 1986 being the year the monetary authority shifted from fixed exchange rate regime to flexible exchange rate regime to 2019. The correlation and regression analysis of the ordinary least square (OLS) were used to analyze the data. The result revealed that exchange rate has positive effect but not significant with ( $\hat{\alpha}=0.014$ ,  $t = 1.783$ , Pns) this affirms previous studies that developing countries are relatively better off in the choice of flexible exchange rate regimes. The result also indicated that interest rate and rate of inflation have negative effect on economic growth but not significant with ( $\hat{\alpha} = -0.002$ ,  $t = -0.015$ , Pns) and ( $\hat{\alpha} = -0.023$ ,  $t = -0.716$ , Pns) respectively. Therefore, the study recommended that government should encourage export promotion strategies in order to maintain a surplus balance of trade. In addition, government should provide a conducive environment for trade, adequate security, effective fiscal and monetary, as well as infrastructural facilities that would attract foreign investments in Nigeria.

**Keywords:** Exchange rate, Inflation, Interest rate, Economic Growth, Regression Analysis.

## 1. Introduction

Exchange rate is perhaps one of the most widely discussed topics in Nigeria today. This is not surprising given its macro-economic importance especially in a highly import dependent economy as Nigeria (Olisadebe, 1995) Exchange rate is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in international trade. Exchange rate regime and interest rate remain important issues of discourse in International finance as well as in developing nations, with more economies embracing trade liberalization as a requisite for economic growth (Obansa, Okoroafor, Aluko & Millicent, 2013).

Perhaps one of the greatest development challenges that have confronted Nigeria since 1986 was when the fixed exchange rate system

was abolished and replaced with the flexible exchange rate system as the designing of policy measures to enhance exchange rate appreciation in Nigeria. This particularly is the case after the abysmal failure of the Structural Adjustment Programme (SAP) devaluation policy package designed to aggressively promote export in Nigeria. Nigeria being an import dependent nation particularly for her capital goods and considering the centrality of the rate of exchange of such a country's currency to her trading partner's currency, a good number of writers have expressed their interest and position on this important subject. Interest rate in this area has significantly increased over the years as being generated by the fluctuations and the depreciating nature of such an important economic variable as well as its effect on other sectors of the economy. Data provided by (Ekanem 1997) shows that manufacturing companies are operating below 40% capacity and they are import dependent. For several years, the manufacturing sector has concentrated basically on the import of raw materials. This seems to be attributable to the overcrowding of this important sector of the Nigerian economy by multinational corporations. As a result, this sector has been deviled by high interest rates, raising inflation, naira depreciation, foreign earning shortages and consumer's strong resistance to local products (Ekanem, 2015).

In addition, Oluksadebe (1991) expressed that the naira exchange rate given its macroeconomic impact especially in Nigeria is perhaps one of the most widely discussed topic today. According to the author one of the worrisome development in the naira exchange rate in recent years, especially since the introduction of the SAP in 1986 is that it has continued to depreciate as a result of which some people have called for fixing of the exchange rate even at par with United States dollar. On the equilibrium of exchange rate, the author remarked that such rates ensure the simultaneous attainment of internal and external balance. Exchange rate policy involves choosing where foreign transaction will take place (Obadan, 1996). Exchange rate policy is therefore a component of macroeconomic management policies the monetary authorities in any given economy uses to achieve internal balance in medium run. Specifically internal balance means the level of economic activity that is consistent with the satisfactory control of inflation. On the contrary, external or sustainable current account deficit financed on lasting basis expected capital inflow.

In Nigeria, exchange rate has changed within the time frame from regulated to deregulated regimes. Ewa, (2011) agreed that the exchange rate of the naira was relatively stable between 1973 and 1979 during the oil boom era and when agricultural products accounted for more than 70% of the nation's gross domestic products (GDP). In 1986 when Federal

government adopted Structural Adjustment Policy (SAP) the country moved from a peg regime to a flexible exchange rate regime where exchange rate is left completely to be determined by market forces but rather the prevailing system is the managed float whereby monetary authorities intervene periodically in the foreign exchange market in order to attain some strategic objectives (Mordi, 2006). This inconsistency in policies and lack of continuity in the exchange rate policies aggravated unstable nature of the naira rate (Gbosi, 2005).

It is important to know that economic objectives are usually the main consideration in determining the exchange control. For instance from 1982 – 1983, the Nigerian currency was pegged to the British pound sterling on a 1.1 ratio. Before then, the Nigerian naira has been devalued by 10%. Apart from these policy measures discussed above, the Central Bank of Nigeria (CBN) applied the basket of currencies approach from 1979 as a guide in determining the exchange rate which was determined by the relative strength of the currencies of the country's trading partner and the volume of trade with such countries. Specifically weights were attached to these countries with the American dollars and British pound sterling on the exchange rate mechanism (CBN, 1994). One of the objectives of the various macroeconomic policies adopted under the structural adjustment programme (SPA) in July, 1986 was to establish a realistic and sustainable exchange rate for the naira, this policy was recommended in 1986 by the International Monetary Fund (IMF). On exchange mechanism and was adopted in 1986.

The key element of SAP was the free market determination of the naira exchange rate through an auction system. This was the beginning of the unstable exchange rate; the government had to establish the foreign exchange market (FEM) to stabilize the exchange rate depending on the state of balance of payments, the rate of inflation, Domestic liquidity and employment. Between 1986 and 2003, the federal Government experimented with different exchange rate policies without allowing any of them to make a remarkable impact in the economy before it was changed. This inconsistency in policies and lack of continuity in exchange rate policies aggravated unstable nature of the naira rate (Gbosi, 1994). Benson and Victor, (2012) and Aliyu, (2011) noted that despite various efforts by the government to maintain a stable exchange rate, the naira has depreciated throughout the 80's to date. Against this background, this research study intends to investigate the impact of exchange rate fluctuation on economic growth over a period of 33 years (1981 – 2014).

According to Mohanty and Bhaumurthy (2014), exchange rate stability is crucial for inflation management as a stable rate is expected to reduce domestic inflation pressures through a policy discipline effect restricting

money supply growth, and credibility effect inducing higher money demand and reducing the velocity of money. However they note that the impossibility trilemma predicts that in the presence of an open capital account a stable exchange rate may lead to lack of control on monetary policy and hence a higher inflation. The effects of high inflation on the economy are generally considered to be harmful. For an open economy as Nigeria, inflation comes from both domestic factors (internal pressures) and overseas factors (external pressures). The external factors result from increase in the world prices of commodities or fluctuations in the real exchange rate.

However the influence of exchange rate on inflation is a function of the exchange rate regime as practiced in Nigeria. Fluctuation in the real exchange rate has a major impact on output and prices through the aggregate demand and supply channels. On the supply side, depreciation or devaluation of domestic currency affects the price level and output directly through the importation of goods in which case the country is an international price taker. Indirect effect of depreciation or devaluation is transmitted through the price of capital goods imported by manufacturers as inputs in the production process. Since the 1970s policy makers have been saddled with the responsibility of reducing and stabilizing the inflation rate. Exchange rate arrangement over the years in Nigeria has undergone significant changes over the past three decades making exchange rate policy one of the macroeconomic issues of our time. According to Rustastara (2004), available data from Central Bank of Nigeria shows that inflation is persistent under various exchange rate arrangements in Nigeria (2013). The exchange rate of the naira was relatively stable between 1973 and 1979 during the oil boom. This was also the situation prior to 1990 when agricultural products accounted for more than 70% of the nation's gross domestic products (GDP) (Ewa, 2011). However, from 1981 the world oil market started to deteriorate and with its economic crises emerged in Nigeria because of the country's dependence on oil sales for her export earnings. To underline the importance of oil export to Nigerian economy, the gross national product (GNP) fell from \$76 billion in 1980 to \$40 billion in 1996, a number of economic growths became negative as a result of the adoption of structural adjustment programme (SAP).

For instance, the exchange rate moved from N8.04 to \$1 in 1990 to N22.05 and N81.65 to a dollar in the same period. When the inflation rate dropped from 72.8 per cent in 1995 to 29.3 per cent and 8.5 per cent, in 1996 and 1997 respectively, and rose thereafter to 10.0 per cent in 1998 and averaged 12.5 per cent in 2000-2009, the exchange rate trended in the same direction. A similar trend was observed for fiscal deficit/GDP ratio and GDP growth rate.

Nigeria's exchange rate has been more volatile in the post-SAP period due to its excessive exposure to external shocks. The effect of the recent global economic meltdown on Nigerian exchange rate was phenomenal as the Naira exchange rate vis-à-vis the Dollar rose astronomically from about N120/\$ to more than N180/\$ (about 50% increase) between 2008 and 2009. This is attributable to the sharp drop in foreign earnings of Nigeria as a result of the persistent fall of crude oil price, which plunged from an all-time high of US\$147 per barrel in July 2007 to a low of US\$45 per barrel in December 2008 (CBN, 2008). Although various factors have been adduced to the poor economic performance of Nigeria, it is necessary to examine the growth process of Nigeria under the various exchange regimes that had been adopted in the country, the effect of inflation and interest rate and impact of trade. Nigeria's over dependent on importation and less emphasis in manufacturing local goods and services depreciated the value of the naira. In summary, a tentative conclusion emerging from the trend analysis is that exchange rate movements engender inflation and there is some association between exchange rate movements and economic growth.

## **2. Conceptual Literature**

### ***2.1. Exchange Rate Policy in Developing Economies***

Exchange rate policies in developing countries are often sensitive and controversial, mainly because of the kind of structural transformation required, such as reducing imports or expanding non-oil exports, which invariably imply a depreciation of the nominal exchange rate. Such domestic adjustments, due to their short-run impact on prices and demand, are perceived as damaging to the economy. Ironically, the distortions inherent in an overvalued exchange rate regime are hardly a subject of debate in developing economies that are dependent on imports for production and consumption.

The debate rather focuses on the degree of fluctuations in the exchange rate in the face of internal and external shocks. There appears a consensus view on the fact that devaluation or depreciation could boost domestic production through stimulating the net export component. This is evident through the increase in international competitiveness of domestic industries leading to the diversion of spending from foreign goods whose prices become high, to domestic goods. As illustrated by Guitan (1976) and Dornbusch (1988), the success of currency depreciation in promoting trade balance largely depends on switching demand in proper direction and amount as well as on the capacity of the home economy to meet the additional demand by supplying more goods. On the whole, exchange rate

fluctuations are likely, in turn, to determine economic performance. It is therefore necessary to evaluate the effects of exchange rate fluctuations on output growth and price inflation.

In Nigeria, the exchange rate policy has undergone substantial transformation from the immediate post-independence period when the country maintained a fixed parity with the British pound, through the oil boom of the 1970s, to the floating of the currency in 1986, following the near collapse of the economy between 1982 and 1985 period. In each of these epochs, the economic and political considerations underpinning the exchange rate policy had important repercussions for the structural evolution of the economy, inflation, the balance of payments and real income.

Hence, the focus of this research is to examine the effect of exchange rate movements on economic growth in Nigeria. Specifically, the possible direct and indirect relationships are investigated. Some previous attempts have been made to conduct econometric studies on exchange rate determination and the movements in output in Nigeria, Egwaikhide *et al* (1994), Ekpo (2004); Akinlo and Odusola (2001), among others. However, these earlier works were based on single equation regression approach. This study deviates from the previous ones in Nigeria by employing a simultaneous equation modeling approach and its structural variant in which movements in output are driven by several fundamental disturbances - monetary, exchange rates (official and parallel), and income.

## **2.2. Overview of Exchange Rate Policy in Nigeria**

In Nigeria today, exchange rates and its constant movement is of great importance to the general public because one way or the other its fluctuation has an effect on the competence of the economy to attain optimal productive capacity. This is alarming given its macro-economic importance specifically in a high import dependent country like Nigeria (Olisadebe, 2013). The Exchange rate reflects the ratio at which one currency can be exchange with another currency, namely the ratio of currency prices. It is the value of a foreign nation's currency in terms of the home nation's currency. It also specifies how much one currency is worth in terms of the other. A correct or appropriate exchange rate has been one of the most important factors for economic growth in the economies of most developed countries, whereas regular fluctuations or inappropriate exchange rate has been a major obstacle to economic growth of many African countries of which Nigeria is inclusive.

Since Nigeria's independence in October 1960, her monetary authorities has pursued vigorously the objectives of internal and external balance in a

desperate bid to raise the standard of living, alleviate poverty and acquire economic and political power, stability and prestige. They did this by administratively adjusting the foreign exchange rate of the domestic currency Vis-a Vis the peculiar and prevailing economic situations (Osuka & Osuji, 2008). After all of government's effort put in place to stabilize the exchange rate, why is there still a fluctuation in the rate and does it affect economic growth? In other words, the paper intends to know whether or not, if the fluctuation in the exchange rate exert on economic growth. Answering this question is important to virtually all the various economic agents; for instance, policy makers will find the answer useful in knowing what policy to pursue when determining appropriate exchange rate policy. Investors (both institutional and private) will also find the result interesting as it will help in determining their expectations as to changes in exchange rate influences on economic growth and of course market performance. The objectives of the paper are hypotheses in their null form such as (i) exchange rate fluctuation has a significant impact on the Nigeria economic growth and development; (ii) fluctuations in exchange rate alters monetary policy variables.

The objectives of an exchange rate policy include determining an appropriate exchange rate and ensuring its stability. Over the years, efforts have been made to achieve these objectives through the applications of various techniques and options to attain efficiency in the foreign exchange market. Exchange rate arrangements in Nigeria have transited from a fixed regime in the 1960s to a pegged regime between the 1970s and the mid-1980s and finally, to the various variants of the floating regime from 1986 with the deregulation and adoption of the structural adjustment programme (SAP). A managed floating exchange rate regime, without any strong commitment to defending any particular parity, has been the most predominant of the floating system in Nigeria since the SAP.

Following the failures of the variants of the flexible exchange rate mechanism (the AFEM introduced in 1995 and the IFEM in 1999) to ensure exchange rate stability, the Dutch Auction System (DAS) was re-introduced on July 22, 2002. The DAS was to serve the triple purposes of reducing the parallel market premium, conserve the dwindling external reserves and achieve a realistic exchange rate for the naira. The DAS helped to stabilize the naira exchange rate, reduce the widening premium, conserve external reserves, and minimize speculative tendencies of authorized dealers. The foreign exchange market has been relatively stabilized since 2003. As indicated by Mordi (2006), The conditions that facilitated the re-introduction of DAS in 2002 included, the external reserve position which could guarantee adequate funding of the market by the CBN; reduce inflationary

pressures; instrument autonomy of the CBN and its prompt deployment of monetary control instruments in support of the DAS as well as the bi-weekly auctions as against the previous fortnightly auctions, thus assuring a steady supply of foreign exchange.

In order to further liberalize the market, narrow the arbitrage premium between the official interbank and bureau de change segments of the markets and achieve convergence, the CBN introduces the Wholesale Dutch Auction System (WDAS) on February 20, 2006. This was meant to consolidate the gains of the retail Dutch Auction System as well as deepen the foreign exchange market in order to evolve a realistic exchange rate of the naira. Under this arrangement, the authorized dealers were permitted to deal in foreign exchange on their own accounts for onward sale to their customers. These exchange rate regimes have had some implication for economic performance. This is discussed in the ensuing section.

### ***2.3. Impact of Exchange Rate Fluctuation on Selected Macroeconomic Indicators in Nigerian***

The Nigerian economy has been planned to become a developed economy in the world by the year 2050 (Obi *et al.*, 2016). An important route to achieving this vision is to pursue a quick and sustained economic growth and development through a well-managed exchange rate policy. An ill-managed exchange rate policy could have a negative effect on economic growth and development (Rodrik, 2008; Kalu *et al.*, 2019). The exchange rate is therefore an international price measure for the competitiveness of an economy. The exchange rate also plays an important part in the allocation of income, spending and production of goods and services. It influences the flow of goods, services, and capital in a country. It has a strong influence on balance of payments, inflation and other macroeconomic variables (Takaendesa, 2006). The choice and management of an effective exchange rate regime is vital to attain macroeconomic stability, growth and development.

Since the end of the Bretton Woods, several developed and developing economies had adopted the floating exchange rate system. Since then, the impact of exchange rate fluctuations on price and aggregate output had attracted several studies. Empirical studies which sought to determine the reasons of these fluctuations have generally based on two main approaches. The first approach suggested that real exchange rate fluctuations are caused by nominal shocks. The second approach suggested that real shocks are productivity-motivated (Inoue and Hamori, 2009). The exchange rate policy in Nigeria has fluctuated between the fixed exchange rate system and a market based (flexible) exchange rate system. The fixed exchange rate system was introduced during the post-independence era in 1960 while



the market based exchange rate system was introduced from 1986 during the structural Adjustment Programme (SAP) era. There have however been controversies (in respect to production of goods and services) under the flexible and fixed exchange rate system. Several exchange rate reforms which had been introduced were aimed at setting the Nigerian economy on the path of macroeconomic stability, recovery and sustainable development (Bakare, 2011). The economy has however degenerated in terms of macroeconomic performances.

Several exchange rate regimes had brought in exchange rate volatilities and uncertainties. The volatilities in exchange rates could be explained in two ways. The first reflects systematic movement of the exchange rate and the second; exchange rate volatility. Exchange rate volatility determines economic performance by influencing savings, lending rate and inflation. The exchange rate policies in Nigeria have changed over the years. It has changed from a fixed exchange rate system in 1960 when it was solely linked with the British Pounds. By 1967, following the depreciation of the British Pounds, the US dollar was included in the parity system. By 1972, the parity system with the Pound Sterling was suspended due to the rise of the stronger US dollar. In 1973, Nigeria returned to the fixed exchange rate system linked to the British Pound as a result of the US dollar devaluation. In 1974, the Naira was tied to both the pound and dollar. During the 1970s, there were frequent increases in value of the naira occasioned by increases in the price of crude oil in the world market. This led to over-reliance on imports, capital flight and reduction of non-oil exports. This created balance of payments imbalance and depletion of external reserves. This also led to the demise of critical sectors of the economy such as the agricultural sector (Osaka *et al.*, 2003). In 1978, the Nigerian currency was pegged to a basket of 12 foreign currencies. This was however neglected in 1985 in favour of quoting the naira against the dollar. Before 1986, the exchange rate policies created the problem of over-valuation of the naira.

In a bid to solve this problem, the naira was deregulated in September 1986 under the Structural Adjustment Programme (SAP). The Second-tier Foreign Exchange Market (SFEM) was therefore established to enhance the SAP. SFEM was expected to create a mechanism for determination of exchange rates in order to provide stability in the short term and ensure balance of payments equilibrium in the long run. The objectives of SFEM was to achieve a realistic naira exchange rate through the market forces of demand and supply, improve foreign exchange inflow and discourage outflow, create an efficient allocation of resources, stimulate non-oil exports, reduce currency trafficking by wiping out unofficial parallel foreign

exchange market (Mordi, 2006). Numerous changes were carried out in order to reinvent the SFEM. It was changed from SFEM to Foreign Exchange Market (FEM); to Autonomous Foreign Exchange Market (AFEM); to Dutch Action System and; to the wholesale Dutch Auction System. The FEM was introduced in 1987 due to the challenges which arose from the first and second tier market rates. Bureau de change was introduced in 1989 with a view to expanding the scope and achieving the objectives of FEM. The fixed exchange rate system was re-established in 1994. In 1995 there was a reversal of policy to guided deregulation which was termed Autonomous Foreign Exchange Market (AFEM). The interbank foreign exchange market (IFEM) was the restored in 1999. In 2002, the Dutch Auction System (DAS) was reintroduced due to pressure in the foreign exchange market. Lastly, the wholesale DAS was introduced in 2006, which further liberalized the market (Obi *et al.*, 2016).

### 3. Empirical Literature

There is a vast body of empirical literature on the impacts of exchange rate devaluation on output and prices. In many of the existing studies, it has been recognized that the possible effects of devaluation on output could be contractionary. To this extent, several channels through which devaluation could be contractionary have been identified. First, Diaz-Alejandro (1965) examined the impacts of devaluation on some macroeconomic variables in Argentina for the period 1955–61. The author observed that devaluation was contractionary for Argentina because it induces a shift in income distribution towards savers, which in turn depresses consumption and real absorption. The author equally observed that current account improved because of the fall in absorption relative to output. More so, Cooper (1971) also reviewed twenty-four devaluation experiences involving nineteen different developing countries during the period 1959–66. The study showed that devaluation improved the trade balance of the devaluing country but that the economic activity often decreased in addition to an increase in inflation in the short term. In a similar study, Gylfson and Schmidt (1983) also constructed a log-linear macro model of an open economy for a sample of ten countries, using different estimates of the key parameters of the model. Their results showed that devaluation was expansionary in eight out of ten countries investigated. Devaluation was found to be contractionary in two countries (the United Kingdom and Brazil). The main feature of the studies reviewed above is that they were based on simulation analyses.

The few studies on contractionary devaluation based on regression analysis include those of Edwards (1989), Agénor (1991), and Morley (1992).

In a pool-time series/ cross-country sample, Edwards (1989) regressed the real GDP on nominal and real exchange rates, government spending, the terms of trade, and measures of money growth. He found that devaluation tended to reduce the output in the short term even where other factors remained constant. His results for the long-term effect of a real devaluation were more mixed; but as a whole it was suggested that the initial contractionary effect was not reversed subsequently. In the same way, Agénor (1995) using a sample of twenty-three developing countries, regressed output growth on contemporaneous and lagged levels of the real exchange rate and on deviations of actual changes from expected ones in the real exchange rate, government spending, the money supply, and foreign income. The results showed that surprises in real exchange rate depreciation actually boosted output growth, but that depreciations of the level of the real exchange rate exerted a contractionary effect.

Another study by Mireille (2007) argues that overvaluation of exchange rates have constituted a major setback in the recovery process of Nigeria and Benin Republic. In addition, the author suggests that devaluation accompanied with well-targeted measures alongside an upward adjustment in the domestic price of tradable goods, could restore exchange rate equilibrium and improve economic performance. In a related study, Aliyu *et al* (2009) examined exchange rate pass-through in Nigeria for the period 1986 to 2007. Quarterly series was employed and a vector Error Correction Model estimation was used in the estimation process. The authors found that exchange rate pass-through in Nigeria during the period under consideration was low and declined along the price chain, which partly overturns the conventional wisdom in the literature that exchange rate pass-through is always considerably higher in developing countries than developed countries. The authors conclude that in the long run, pass through would likely increase and monetary policy should be designed to accommodate the effect.

On the study of exchange rate on real output, Morley (1992) analyzed the effect of real exchange rates on output for twenty eight developing countries that have devalued their currencies using a regression framework. After the introduction of controls for factors that could simultaneously induce devaluation and reduce output including terms of trade, import growth, the money supply, and the fiscal balance, he discovered that depreciation of the level of the real exchange rate reduced the output. Kamin and Klau (1998) using an error correction technique estimated a regression equation linking the output to the real exchange rate for a group of twenty seven countries. They did not find that devaluations were contractionary in the long term. Additionally, through the control of the sources of spurious

correlation, reverse causality appeared to alternate the measured contractionary effect of devaluation in the short term although the effect persisted even after the introduction of controls. Apart from the findings from simulation and regression analyses, results from VAR models, though not focused mainly on the effects of the exchange rate on the output per se, are equally informative. Also, Ndung'u (1993) estimated a six-variable VAR—money supply, domestic price level, exchange rate index, foreign price index, real output, and the rate of interest—in an attempt to explain the inflation movement in Kenya. He observed that the rate of inflation and exchange rate explained each other. A similar conclusion was also reached in the extended version of this study (Ndung'u 1997).

Likewise, Rodriguez and Diaz (1995) estimated a six-variable VAR—output growth, real wage growth, exchange rate depreciation, inflation, monetary growth, and the Solow residuals—in an attempt to decompose the movements of Peruvian output. They found that output growth could mainly be explained by own shocks but was negatively affected by increases in exchange rate depreciation as well. Rogers and Wang (1995) obtained similar results for Mexico. In a five-variable VAR model—output, government spending, inflation, the real exchange rate, and money growth—most variations in the Mexican output resulted from own shocks. They however noted that exchange rate depreciations led to a decline in output. Adopting the same methodology, though with slightly different variables, Copelman and Wermer (1996) reported that positive shocks to the rate of exchange rate depreciation, significantly reduced credit availability, with a negative impact on the output. Surprisingly, they found that shocks to the level of the real exchange rate had no effects on the output, indicating that the contractionary effects of devaluation are more associated with the rate of change of the nominal exchange rate than with the level of the change of the real exchange rate. They equally found that own shocks to real credit did not affect the output, implying that depreciation depressed the output through mechanisms other than the reduction of credit availability.

It is important to mention the work of Odusola and Akinlo (2001) who examined the linkage among exchange rate, inflation and output in Nigeria. A structural VAR model was employed which captured the interactions between exchange rate and output. Evidence from the contemporaneous models showed a contractionary impact of the parallel exchange rate on output only in the short term. Prices, parallel exchange rate and lending rate were found to be important sources of perturbations in the official exchange rate. In addition, output and parallel exchange rate were significant determinants of inflation dynamics in Nigeria. The authors

concluded by suggesting more concerted efforts by the Central Bank towards taming the parallel exchange rate behavior and formulating monetary policies that enhance income growth. Largely the findings were informative. Batini (2004) and Mordi (2006) present similar arguments in different studies on Nigeria. On the contrary, Aliyu *et al* (2009) find that prices react less proportionately to exchange rate shock in Nigeria.

However, on the issue of exchange rate and economic growth, lots of empirical literature abound. Exchange rate is the price of one country's currency in relation to another country. It is the required amount of units of a currency that can buy another amount of units of another currency. On this premise, Aliyu (2011) asserted that appreciation of exchange rate results in increased imports and reduced export while depreciation would expand export and discourage import. Also, depreciation of exchange rate tends to cause a shift from foreign goods to domestic goods. Hence, it leads to diversion of income from importing countries to countries exporting through a shift in terms of trade, and this tends to have impact on the exporting and importing countries' economic growth. In the same vein, Hossain (2002) agreed that exchange rate helps to connect the price systems of two different countries by making it possible for international trade and also effects on the volume of imports and exports, as well as country's balance of payments position. Rogoffs and Reinhartl (2004) also opined that developing countries are relatively better off in the choice of flexible exchange rate regimes.

Previous research on the impact of exchange rate on economic growth has reached contrasting results. For instance, Empirical evidence showed that real exchange rate variations can affect growth outcomes. Edwards and Levy Yeyati (2003) found evidence that countries with more flexible exchange rate grow faster. Faster economic growth is significantly associated with real exchange rate depreciation (Hausmann, Pritchett, and Rodrik 2005). Rodrik (2009) argued that real undervaluation promotes economic growth, increases the profitability of the tradable sector, and leads to an expansion of the share of tradable in domestic value added. He claims that the tradable sector in developing countries can be too small because it suffers more than the non-tradable sector from institutional weaknesses and market failures. A real exchange rate undervaluation works as a second-best policy to compensate for the negative effects of these distortions by enhancing the sector's profitability. Higher profitability promotes investment in the tradable sector, which then expands, and promotes economic growth. Similarly, Asher (2012) examined the impact of exchange rate fluctuation on the Nigeria economic growth for period of 1980 – 2010. The result showed that real exchange rate has a positive effect on the economic growth.

In a similar study, Akpan (2008) investigated foreign exchange market and economic growth in an emerging petroleum based economy from 1970-2003 in Nigeria. He found that positive relationship exists between exchange rate and economic growth. Obansa, Okoroafor, Aluko and Millicent (2013) also examined the relationship between exchange rate and economic growth in Nigeria between 1970 – 2010. The result indicated that exchange rate has a strong impact on economic growth. They concluded that exchange rate liberalization was good to Nigerian economy as it promote economic growth. Azeez, Kolapo and Ajayi (2012) also investigated the effect of exchange rate volatility on macroeconomic performance in Nigeria from 1986 – 2010. They discovered that exchange rate is positive related to Gross Domestic Product. Adebisi and Dauda (2009) using error correction model argued on the contrary that trade liberalization promoted growth in the Nigerian industrial sector and stabilized the exchange rate market between 1970 and 2006. To them, there was a positive and significant relationship between index of industrial production and real export. A one per cent rise in real export increases the index of industrial production by 12.2 per cent. By implication, it means that the policy of deregulation impacted positively on export through exchange rate depreciation.

However, past studies also showed that exchange rate has no significant effect on economic growth performance. For example, Bosworth, Collins, and Yuchin (1995) provided evidence that in a large sample of industrial and developing countries, real exchange rate volatility hampers economic growth and reduces productivity growth. Ubok-udom (1999) examined the issues surrounding the implementation of SAP in Nigeria, and drew up a conclusion that the peculiar features of Nigerian economy reduced the efficacy of currency depreciation in producing desirable effects. From the study of the relationship between exchange rate variation and growth of the domestic output in Nigeria (1971-1995); he expressed growth of domestic output as a linear function of variations in the average nominal exchange rate. He further used dummy variables to capture the periods of currency depreciation. The empirical result showed that all coefficients of the major explanatory variables have negative signs. David, Umeh and Ameh (2010) also examined the effect of exchange rate fluctuations on Nigerian manufacturing industry. They employed multiple regression econometric tools which revealed a negative relationship between exchange rate volatility and manufacturing sector performance. Consistently, Aghion *et al.* (2009) found a similar result, but they also showed that the negative effect of real exchange rate volatility on economic growth shrinks in countries with higher levels of financial development.

Furthermore, Barkoulas *et al* (2002) examined the impact of exchange rate fluctuation on the volume and variability of trade flows. They

concluded that, exchange rate volatility discourages expansion of the volume of trade thereby reducing its benefits. Eichengreen and Leblang (2003) carried out their research in 12 countries over a period of 120 years and found strong inverse relationship between exchange rate stability and growth. They concluded that the results of such estimations strongly depend on the time period and the sample. Ogun (2006) studied on the impacts of real exchange rate on growth of non-oil export in Nigeria highlighted the effects of real exchange rate misalignment and volatility on the growth of non-oil exports. He employed the standard trade theory model of determinants of export growth and two different measures of real exchange misalignment, one of which entails deviation of the purchasing power parity (PPP), and the other which is model based estimation of equilibrium real exchange rate (ERER). He observed that irrespective of the alternative measures of misalignment employed, both real exchange misalignment and volatility adversely affected growth of Nigerian non-oil exports. Arize, Osang, and Slottje (2000) found a significant negative relationship between increases in exchange rate volatility and exports in developing countries. Servén (2003) showed that real exchange rate volatility negatively affects investment in a large panel of developing countries. This negative impact is significantly larger in countries with highly open economies and less developed financial systems. He also found evidence of threshold effects, whereby uncertainty only matters when it is relatively high. A similar study, Eme and Johson (2012) investigated the effect of exchange rate movements on real output growth in Nigeria for the period 1986 – 2010. The result revealed that there is no evidence of a strong direct relationship between changes in exchange rate and output growth. Rather, Nigeria economic growth has been directly affected by monetary variables.

Past research on the impact of exchange rate fluctuation on economic growth has reached contrasting results. For instance, a number of empirical evidences show that real exchange rate fluctuation can affect growth outcomes. Some other schools of thought are of the views that no significant relationship exist between exchange rate and economic growth. Edwards and Levy Yeyati (2003) found indications that countries with more flexible exchange rate grow faster than those without. Faster economic growth is extensively associated with real exchange rate depreciation (Hausmann, Pritchett & Rodrik, 2005). Rodrik (2008) was of the opinion that real undervaluation promotes economic growth, increases the profitability of the tradable sector, and leads to an enlargement of the share of tradable in domestic value added. He stated that the tradable sector in developing countries can be too small because it suffers more than the non-tradable

sector from institutional weaknesses and market failures. A real exchange rate undervaluation works as a second-best policy to compensate for the negative effects of this misinterpretation by enhancing the sector's profitability. Higher profitability promotes investment in the tradable sector, which then expands, and promotes economic growth.

In addition, Harris (2002) using the Generalized Least Square technique revealed that real exchange rate, when properly managed affect productivity and growth in both the short and long run, the result is coherent with the competitiveness hypothesis, which suggests that exchange rate depreciation boost productivity and growth in the short run. Aghin et al (2006) in their study also found that the effect of exchange rate volatility, which is the aftermath of how well the economy is managed on real activity is relatively small and insignificant. This is in resonance with the findings of Dubas and Lee (2005), which both discovered a robust relationship between exchange rate stability and growth. Moreover, the result suggests that membership of the (South) Eastern and Central European countries in the European Monetary Union would have a positive impact on these countries' growth rates. In the same vein, Hossain (2002) agreed that exchange rate helps to relate the price systems of two different economies by ensuring the possibility for international trade and it also effects on the volume of imports and exports, as well as country's balance of payments position. Rogoffs and Reinhartl (2004) also pronounced that developing countries are relatively better off in the choice of flexible exchange rate regimes. Odusola and Akinlo (2003) discovered a mixed result on the impacts of the exchange rate depreciation on the output in Nigeria. In the medium and long term, exchange rate depreciation exercised an expansionary impact on output, but in the short run exchange rate depreciation does not expand output. This result partially verifies what Rano-Aliyu found using Vector Error Correction Model (VECM) technique while Odusola and Akinio used VAR and VECM. So, the difference in their results can be credited to the difference in their methodologies.

Moreover, Rano-Aliyu (2009), carried out a study in Nigeria, and he discovered that the appreciation of exchange rate exercise positively impacts on real economic growth in Nigeria. Although the appreciation of the exchange rate will lead to a loss of competitiveness, since the economy primarily does not have the capacity to appropriate gains through competitiveness it is therefore more gratifying when the currency appreciate than when it depreciates. This is due to the fact that appreciation will dampen inflation, boost domestic investment, savings and enhance the standard of living. Aliyu (2011) affirmed that appreciation of exchange rate brings about increased imports and reduced exports while depreciation



would expand export and discourage import. Also, depreciation of exchange rate is likely to cause a shift from foreign goods to domestic goods. Thus, it leads to diversion of income from importing countries to countries exporting through a shift in terms of trade, and this tends to have impact on the exporting and importing countries' economic growth. Asher (2012) analyzed the impact of exchange rate fluctuation on the Nigerian economic growth for period of 1980 – 2010. The result revealed that real exchange rate has a positive effect on the economic growth. In a related study, Akpan (2008) examined foreign exchange market and economic growth in an emerging petroleum based economy from 1970-2003 in Nigeria. He realized that positive relationship exists between exchange rate and economic growth.

Similarly, Obansa *et al* (2013) also investigated the relationship between exchange rate and economic growth in Nigeria between the years 1970–2010. The result stipulated that exchange rate has a strong impact on economic growth. They established that exchange rate liberalization was good to the Nigerian economy as it promotes economic growth. Azeez, Kolapo and Ajayi (2012) also analyzed the effect of exchange rate volatility on macroeconomic performance in Nigeria from 1986 – 2010. They revealed that exchange rate is positive related to Gross Domestic Product. Adebisi and Dauda (2009) with the use of error correction model disputed on the contrary, that trade liberalization promoted growth in the Nigerian industrial sector and stabilized the exchange rate market between 1970 and 2006. To them, there was a positive and significant relationship between index of industrial production and real export. A one per cent rise in real export increases the index of industrial production by 12.2 per cent. By inference, it means that the policy of deregulation influenced positively on export through exchange rate depreciation.

However, previous studies have also revealed that exchange rate has no significant effect on economic growth performance. For example, Bosworth, Collins, and Yuchin (1995) presented evidence that in a large sample of industrial and developing countries, that real exchange rate volatility impede economic growth and reduces productivity and growth. Ubok-udom (1999) analyzed the issues surrounding the implementation of SAP in Nigeria, and drew up a deduction that the peculiar features of Nigerian economy limits the efficacy of currency depreciation in producing desirable effects. From the study of the relationship between exchange rate variation and growth of the domestic output in Nigeria (1971-1995); he expressed growth of domestic output as a linear function of variations in the average nominal exchange rate. In addition he used dummy variables to capture the periods of currency depreciation. The empirical result

revealed that all coefficients of the major explanatory variables have negative signs. David, Umeh and Ameh (2010) also analyzed the effect of exchange rate fluctuations on Nigerian manufacturing industry. They employed multiple regression econometric tools which showed a negative relationship between exchange rate volatility and manufacturing sector performance.

The mixed or inconclusiveness of the results coupled with the emphasis placed on the impact of exchange rate fluctuation on economic growth as shown in various government policies in Nigeria is the motivation for this study.

#### **4. Material and Methods**

Data used are sourced from the Central Bank of Nigeria Bulletin various issues. The main type of data used in this study is secondary; sourced from Central Bank of Nigeria statistical bulletin of various issues, and the International Monetary Fund (IMF) financial statistics. From 1986 being the year the monetary authority shifted from fixed exchange rate regime to flexible exchange rate regime to 2019. This period is chosen as it corresponds to the period where uniform and consistent data on the relevant variables are available. More importantly, this period witnessed several exchange rate regimes. As a working definition of the real exchange rate, the nominal exchange rate is nominal exchange rate adjusted with the ratio of the foreign price level (US CPI, as a proxy for the price of tradables) and the domestic price level (Nigerian CPI as a proxy for price of non-tradables). This definition follows the purchasing power parity condition.

The models used in this study are estimated using annual Nigeria data on some macro-economic indicators, which includes: Gross Domestic Products (GDP); Exchange Rate (EXR); Interest Rate (INR) and Inflation Rate (IFR) for the period 1986 – 2019. The correlation and multiple regression analysis of the ordinary least square (OLS) is the estimation technique that is being employed in this study to determine the impact of the Exchange Rate on economic growth proxy by Gross Domestic Product (GDP). The model which specifies that economic growth (GDP) is significantly influenced by the Exchange Rate, Interest Rate and Rate of Inflation are formulated as follows:

$$GDP = f (EXR, INR, IFR)$$

$$\ln GDP = \beta_0 + \beta_1 \ln EXR + \beta_2 \ln INR + \beta_3 \ln IFR$$

$$\ln GDP = \text{Gross Domestic Product}$$

$$\ln EXR = \text{Exchange Rate}$$

Ln INR = Interest Rate

LnIFR = Inflation Rate

$\beta$  = intercept

$\beta_1 - \beta_3$  = Coefficient of the independent variables

Note: All variables are in their natural logarithm form.

## 5. Results and Discussion

In this section, estimated findings based on correlation and regression analysis are presented with the view to providing better understanding of the relationship between exchange rate and other selected macroeconomic variables in Nigeria for the period under study.

**Table 1: Correlation coefficient showing the relationships in the exchange rate**

		<i>GDP Growth Rate</i>	<i>Exchange Rate</i>	<i>Interest Rate</i>	<i>Inflation Rate</i>
GDP Growth Rate	Pearson Correlation	1	.367	-.152	-.289
	Sig. (2-tailed)		.055	.439	.135
	N	28	28	28	28
Exchange Rate	Pearson Correlation	.367	1	-.264	-.429*
	Sig. (2-tailed)	.055		.174	.023
	N	28	28	28	28
Interest Rate	Pearson Correlation	-.152	-.264	1	.440*
	Sig. (2-tailed)	.439	.174		.019
	N	28	28	28	28
Inflation Rate	Pearson Correlation	-.289	-.429*	.440*	1
	Sig. (2-tailed)	.135	.023	.019	
	N	28	28	28	28

\*. Correlation is significant at the 0.05 level (2-tailed).

Table 1 shows that exchange rate has positive relationship with economic growth but not significant. This implies that exchange rate

**Table 2: Regression Result**

<i>Variable</i>	<i>Co-efficient</i>	<i>t- value</i>	<i>P</i>
Constant	4.558	1.783	0.087
Exchange Rate	0.014	1.426	0.167
Interest Rate	-0.002	-0.015	0.988
Inflation Rate	-0.023	-0.716	0.481
R <sup>2</sup>	0.156		
Adj. R <sup>2</sup>	0.050		
F – Value	1.478		
probability	0.245		

volatility contributes 3.67% to Gross Domestic Product. This result is in line with Ashar, (2012), Akpan, (2008) and Azeez *et al.* (2012) that exchange rate has positive relationship with Nigeria economic growth. But interest rate and rate of inflation have inverse effect on economic growth. This implies that the higher the interest rate and rate of inflation the lower the level of Gross Domestic Product. This result conform to Ashar (2012) that interest has negative relationship with economic growth but inflation rate result is not in line with her finding.

From table 2, the value of the intercept which is 4.558 shows that the Nigerian economy will experience a 4.558 increase when all other variables are held constant. The estimate coefficients which are 0.014 (Exchange Rate) shows that a unit change in Exchange Rate will cause a 0.1.4% increase in GDP, -0.002 (Interest Rate) shows that a unit change in Interest Rate will cause a 0.2% decrease in GDP, -0.023 (Inflation Rate) shows that a unit change in Inflation Rate will cause a 0.2.3% decrease in GDP. The result shows that exchange rate has positive impact on economic growth and this result is in line with previous studies (Asher, 2012; Azeez *et al*, 2012 and Obansa *et al*, 2012) that exchange rate has positive impact on Gross Domestic Product.

## 6. Conclusion and Recommendations

This study examined the impact of exchange rate on economic growth from 1986 to 2019. The result revealed that exchange rate has positive impact but not significant with ( $\beta = 0.014$ ,  $t = 1.783$ , Pns) this is affirms previous studies that developing countries are relatively better off in the choice of flexible exchange rate regimes. The result also indicated that interest rate and rate of inflation have negative impact on economic growth but not significant with ( $\beta = -0.002$ ,  $t = -0.015$ , Pns) and ( $\beta = -0.023$ ,  $t = -0.716$ , Pns) respectively. From the empirical reviewed work, some authors argued that exchange rate is positively related to economic growth, while some authors argued that it is negatively related. However, from empirical analysis of the study, it was found that exchange rate is positively related to output growth. The study concluded that the exchange rate did not significantly impact the non-oil sectors namely the agricultural, manufacturing and service sector. However, the petroleum and natural gas sector had been significantly impacted by exchange rate fluctuations. This was probably because the non-oil sectors had not been significant foreign exchange earners over the years. This suggested that Nigeria had abandoned other viable economic sectors during the "oil rain" thereby stifling the potentials of other sectors of the economy. To boost the economy, these non-oil sectors have to be repositioned. For the agricultural sector to become a major

foreign exchange earner, the government would have to introduce better technologies that would ensure increased quantity and quality of food. The manufacturing sector could benefit immensely from its foreign exchange potential if the appropriate technology and infrastructure were put in place. The service sector is also an important potential foreign exchange earner if encouraged.

In view of the findings, the study recommends that government should encourage the export promotion strategies in order to maintain a surplus balance of trade. In addition, government should provide a conducive environment for trade, adequate security; effective fiscal and monetary, as well as infrastructural facilities should be provided so that foreign investors will be attracted to invest in Nigeria. Nigeria's economy should be diversified. This would enable the non-oil and service sectors to become significant foreign exchange earners for the country. This has become necessary with the high rate of volatility associated with the oil earnings. Furthermore, with the advent of alternative sources of energy such as solar, wind and nuclear energy; the relevance of crude oil will gradually diminish over the years. Nigeria's economic planners and policy makers should therefore design policies that would shift focus from the oil sector and make non-oil and service sectors in the economy productive.

### *Reference*

- Adebiyi, M.A & Dauda, R.O.S (2009). *Trade Liberalization policy and Industrialization Growth performance in Nigeria: An Error Correction Mechanism Technique, being a paper presented at the 45th annual conference of the Nigerian economic Society, 24th to 26th August, Central Bank of Nigeria new building auditorium, Abuja.*
- Aghion, P., P. Bacchetta, R. Ranciere, and K. Rogoff. 2009. "Exchange Rate Volatility and
- Akpan, P.L (2008). Foreign exchange market and economic growth in an emerging petroleum based economy: Evidence from Nigeria (1970-2003). *African Economic and Business Review* 6(2), 46-58.
- Aliyu, S.R.U. (2011). Impact of Oil Price Shock and Exchange Rate Volatility on Economic Growth in Nigeria: An Empirical Investigation, *Research Journal of International Studies*.
- Arize, A. C., T. Osang, and D. J. Slottje. 2000. "Exchange-Rate Volatility and Foreign Trade: Evidence from Thirteen LDCs." *Journal of Business and Economic Statistics* 18 (1): 10–17.
- Asher O. J (2012). The Impact of Exchange rate Fluctuation on the Nigeria Economic Growth (1980 – 2010). Unpublished B.sc Thesis of Caritas University Emene, Enugu State, Nigeria.
- Azeez, B.A., Kolapo, F.T and Ajayi, L.B (2012). Effect of Exchange rate Volatility on Macroeconomic Performance in Nigeria. *Interdisciplinary Journal of Contemporary Research in Business*. 4(1), 149-155.

- Barkoulas, J.T, Baum C.&Caglayan, M. (2002).Exchange Rate Effect on the Volume and Variability of Trade Flows, *Journal on International Money and Finance*, No.21 pp. 481-406.
- Benson, U.O and Victor, E.O (2012). Real Exchange Rate and Macroeconomic Performance: Testing for the Balassa-Samuelson Hypothesis in Nigeria. *International Journal of Economics and Finance*: 4 (2), 127-134.
- Bosworth, B., S. Collins, and C. Yu-chin. (1995). "Accounting for Differences in Economic Growth." Unpublished manuscript. Brookings Institution, Washington, DC.
- David, Umeh&Ameh (2010). The Effect of Exchange Rate fluctuations on Nigeria Manufacturing Sector, *African Journal of Business Management* 4(14):2994-2998.
- Edwards, S. and E. Levy-Yeyati (2003), "Flexible Exchange Rates as Shock Absorbers", NBER working paper 9867.
- Eichengreen, B and Leblang, D. (2003). Exchange Rates and Cohesion: Historical Perspectives and Political-Economy Considerations, *Journal of Common Market Studies* Vol. 41, pp. 797–822.
- Eme, O.A and Johnson A.A (2012). Effect of Exchange Rate Movements on Economic Growth in Nigeria. *CBN Journal of Applied Statistics*. 2(2), 1-28.
- Ewa A (2011) in Asher O. J (2012). The Impact Of Exchange Rate Fluctuation On The Nigeria Economic Growth (1980 – 2010). Unpublished B.Sc Thesis of Caritas University Emene, Enugu State, Nigeria.
- Gbosi, A. N. (2005). *Money, Monetary Policy and the Economy*. Port Harcourt: Sodek.
- Hausmann, R., L. Pritchett, and D. Rodrik (2005). "Growth Accelerations." *Journal of Economic Growth* 10 (4): 303–29.
- Hossain, A, (2002), "Exchange Rate Responses to Inflation in Bangladesh", (Washington D.C., IMF Working Paper No. WP/02/XX)
- Mordi, M.C. (2006). Challenges of Exchange Rate Volatility in Economic Management of Nigeria, In the Dynamics of Exchange Rate in Nigeria, *CBN Bullion* Vol. 30 (3), July-September. Pp.17-25
- Obansa, S. A. J., Okoroafor, O. K. D., Aluko, O. O., and Millicent Eze (2013). Percieved Relationship between Exchange Rate, Interest Rate and Economic Growth in Nigeria: 1970- 2010. *American Journal of Humanities and Social Sciences*: 1( 3), 116-124.
- Ogun, O (2006). Real Exchange Rate Behaviour and Non-oil export Growth in Nigeria. *African Journal of Economic Policy*, 11(1), June.
- Productivity Growth: The Role of Financial Development." *Journal of Monetary Economics* 56 (4): 494–513.
- Rodric, D. (2006). *The Real Exchange Rate and Economic Growth*, Harvard University, Cambridge, September.
- Servén, L. 2003. "Real-Exchange-Rate Uncertainty and Private Investment in LDCs." *Review of Economics and Statistics* 85: 212–18.
- Ubok-Udom, E.U (1999). Currency Depreciation and Domestic Output growth in Nigeria: 1971- 1995, *The Nigerian Journal of Economics and Social studies*, 41(1), 31-44.
- Usman, O.A and Adeare, A.T (2012). The effects of foreign exchange regimes on industrial growth in Nigeria. *Global Advanced Research Journal of Economics, Accounting and Finance*. 1(1), 1-8.