Exchange Rate Management and Sectoral Output Performance

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Abstract

The aim of all national economies is to stabilize its exchange rate with the countries it trades with; therefore exchange rate is very vital to the economy of every country. Nigeria has adopted both fixed and fluctuating exchange rate regimes in order to realize the goal of a stable exchange rate but this has proven futile as the economy has continued to perform poorly over the years. This study is therefore aimed at examining the effect exchange rate management has on output performance of both the agricultural and the manufacturing sector. Secondary data from 1981 – 2015 were analyzed using the Ordinary Least Square technique. The findings revealed that exchange rate have a positive and significant effect on only the agriculture sector. The study recommends amongst others that efforts should be made to increase the exportation of agricultural products in order to boost exchange rate.

Keywords: Exchange rate; Agriculture; Manufacturing sector; Sectoral output

Introduction

Exchange rate can be defined as the value of one currency in relation to another. It is the price of the currency of one country in terms of another. The goal of every economy is to have a stable exchange rate with the countries it trades with. The exchange rate of a country is of vital importance to a country's international trade because no country is self-sufficient or independent as a result of the variation in various endowments (Enekwe, Ordu, and Nwoha, 2013). According to Alabi (2015), the bleak economic development in Africa could be linked to the changes in real exchange rate. It is therefore important to state that an efficient exchange rate policy is important to enhance economic performance in any country. Asher (2012) stated that the exchange rate of a country is used as a yard stick to determine the growth of the country.

In Nigeria, the stability of exchange rate was not achieved in spite of the devaluation of the naira to promote export. Enekwe, Ordu, and Nwoha (2013) observed that exchange rate management in developing nations are most times unstable due to the structural reformation needed like reduction of goods importation and increasing the exportation of goods and services. Ikpefan, Isibor, and Okafor (2016) stated that exchange rate was fairly stable from 1973 to 1979 during the oil boom period since 70% of the nation's GDP was made up of agricultural products, but in 1986 after the introduction of the Structural Adjustment Programme, the country moved to a flexible exchange rate from a fixed exchange rate which was determined by market forces. This conflicting exchange rate policy contributed to the fluctuating and unstable nature of the naira and this failure made various industrial sectors of the economy to face the challenge of exchange rate fluctuation (Enekwe, Ordu, and Nwoha, 2013).

Oladipupo and Onotaniyohowo (2011) observed that fluctuations in the rate of exchange had a significant effect on some macroeconomic variables in the economy like the level of inflation, unemployment, interest rates, and money supply. Exchange rate fluctuations also affect the production of goods in the economy, investment opportunities, level of employment, and income and wealth distribution, (Oladipupo and Onotaniyohowo, 2011). Elumelu (2012) defined management of exchange rate as a deliberate attempt at controlling and using optimally the available foreign resources in a country while making sure the external reserves increases so as to dodge external shocks which are because of the reducing foreign exchange incomes. The effective management of exchange rate in a country is one of the key elements in the financial structure of various industrial sectors.

The economy of Nigeria has been described as a 'Mono Economy' exporting majorly crude oil and importing 60% of our basic commodities. In a country with high import rate, there is a great demand for foreign exchange, from the power subsector, oil and gas industries, manufacturing industries, commercial sector and other sectors of the economy. Therefore, exchange rate fluctuations affect the purchasing power, balance of payment, prices, import, export, external reserves, among others.

The Nigerian Naira has depreciated and appreciated several times as a result of government intervention and market forces, so as to obtain a stable exchange rate that would improve the performance of macro-economic variable and diversify the productive base of the economy (Yaqub, 2010). The Nigerian Government has however been unable to stabilize the exchange rate and the currency has continually depreciated from the early periods till date. As a result of a series of adverse development in the international oil market, Nigeria has been pushed into a difficult situation.

The economy continues to depend on crude oil as its single export which contributes up to about 80% of the country's income while agriculture which was the pillar of the economy before the discovery of oil continues to abate. Also output in the manufacturing sector has been adversely affected during this period. The economy today is facing a foreign exchange scarcity which is as a result of high exchange rate of the naira to dollar, which has resulted into stagflation, leading to increase of prices of goods and services which affect the output of industries. The economy is currently in a recession and this has resulted in major losses in different sectors of the economy. Although a lot of research studies have been done to show the effect of exchange rate fluctuation on economic growth of developing nations, very few studies has been done on its effect on sectors of the economy. This study will thus be examining the effect of exchange rate on two major sectors of the economy which are the agricultural and manufacturing and sectors.

Conceptual Framework

Developments in Exchange Rate Policies

Between 1959 and 1994, ad-hoc administrative measures were put in place, the Nigeria foreign exchange was the pound sterling until the actualization of the sterling by 10% in 1967. After the exchange rate was changed from pound to naira in 1973, fixed exchange rate were set for the US dollar and the pound sterling. This was done to stabilize the foreign exchange (Obadan, 1997). During the 1970s, many countries were pushed to change their foreign exchange because of unprecedented changes such as high rate of inflation and unemployment, low productivity and instability in the international financial system. Between 1972 and 1994, the Nigeria monetary authorities decided to set naira at par with the US dollar. This period coincided with oil boom period and by 1981, N1.00=$0.65. The official foreign exchange reserve was also $1 billion.

During 1985, a policy of one currency intervention was introduced, where naira was quoted against only against the dollar. Ikpefan, Isibor, and Okafor (2016) postulated that this policy was adopted so as to minimize the challenge of high incidence in the foreign exchange quotation.

During SAP, the Second-tier foreign exchange market was introduced in September 1986 (Isibor, Ojo, and Ikpefan, 2017). The SFEM was operated along with a managed first tier exchange market. Nigeria moved from a fixed exchange rate to a floating exchange rate regimes during this period. During the year 1987, Unified official market was introduced where both the first-tier and second-tier markets were merged. During the year 1988, banks transacted foreign exchange business among themselves but this was discontinued in 1989 due to instability, (Taiwo, Babajide, Okafor, and Isibor, 2016).

In October 1990, the Foreign exchange market was liberalized again and the Interbank Foreign Exchange market was introduced (IFEM). They used weighted average to determine the exchange rate at different times. In December 1990, the Dutch Auction System was introduced, although it was first used in April 1987 but was scrapped due to instability in the FOREX market. In 1994, the Federal Government fixed the official exchange rate at N21.1960 to a dollar, in order to secure the illegalities of the parallel market and to prevent bureau the change from selling foreign exchange.

In 1995, the dual exchange rate policy was introduced with the aim of reducing the depreciation of naira in the parallel market and for efficient allocation and utilization of resources. The foreign exchange provision decree17 of 195 was enacted which established the autonomous foreign exchange for trading for privately sourced foreign exchange. During the period 1996, 1US dollar=N80.00. In 1997, liberalization of some payments increased the pressure on the foreign exchange which depreciated it to 1USdollar=N85.00

In 2000, the dual exchange rate system was repealed by the Federal Government and the autonomous foreign exchange rate was merged with the government official rate. The official rate of N22.00 to 1 US dollar was also scrapped. The exchange rate in 2001 was N111.20 to 1 US dollar in the foreign exchange market and N128 in the parallel market. During 2002, the Dutch Auction System was reintroduced and the Retail Dutch System was implemented with the CBN selling to end-users through the banks. By January 2003, the naira further depreciated to N131, (Olokoyo, Isibor, Oladeji, and Edosomwan, 2016).

In 2006, the market was deregulated with the adoption of Wholesale Dutch Auction System (CBN Bullion, 2007). This was meant to deepen the foreign exchange market on their accounts for onward sale to their customers, (Ogochukwu, Ikpefan, Okafor, and Isibor, 2016).

Trends in the Agriculture Sector

Before the CBN was established, Exchange rate earnings were made by the private sector, (Ikpefan, Isibor, and Okafor (2016). During this era the main bulk of the foreign exchange earnings were made from agricultural earnings. In the early 1970's crude oil replaced agriculture as the major source of export, this was due to the rise in the price of petroleum which helped to increase the foreign exchange reserve of the country. The policies established during the Pre-SFEM period from 1962 to 1986 led to structural changes which resulted into price distortions and increased vulnerability to external shocks, (Adeniran, Yusuf, and Adeyemi, 2014). The liberalization of import control in 1976 threatened the domestic production of both the agricultural and manufacturing sectors. Therefore, the competiveness of the agricultural sector as the principal contributor to the GDP was deteriorating due to the appreciation of Naira, rural-urban migration and in effective pricing policy.

Trends in the Manufacturing Sector

Onyeizugbe and Umeaguges (2014) defined manufacturing capital utilization as the extent a nation or enterprise uses its installed production capacity. Before 1986, the reforms in foreign exchange polices helped to boost the manufacturing output. The Nigerian average manufacturing capacity utilization has continued to experience a downward trend while inflation has continued to move upward and the naira

has continuously depreciated. In 1975, the average manufacturing capacity utilization was 76.6%, in 1980, it moved to 70.1%, 38.3% in 1985, 29.29% in 1995, 36.1% in 2000, 54.8% in 2005, 53.8% in 2008, 58.92% in 2009, and 55.82% in 2010, 58.8% in 2015, in 2016, the manufacturing capacity utilization fell to 50.7% in July from 53.7% in Nigeria.

The lack of vital industrial inputs adversely affected the industry capacity utilization which fell from 76.6% in 1981 to averagely 25% between 1982 and 1986. One of the major characteristic of the Structural Adjustment Program was the increase in the cost of importing inputs in order to encourage the use of vital inputs. After the introduction of SAP and the scrapping of the import license system, there was an improvement in industrial performance. There was a continuous rise in the average capacity utilization from 1987 to 1989 by about 32%. The manufacturing sector contributed to about 4% of the GDP in 1977, 13% in 1982, 15% in 2012, and 16% in 2015.

Theoretical Framework

Balance of Payment Theory

This theory implies that the exchange rate of a nation is determined by the market forces in the foreign exchange market. These forces are determined by the contents of the country's balance of payment. It also asserts that exchange rate is determined from the position of balance of payments of a country, a nation's balance of payment can be in surplus or deficit, when it is in deficit that means that there is a more demand for foreign currency than the home currency and when it is in surplus, it means there is more demand for the home currency.

Balance of payment theory is a more satisfactory theory than purchasing power parity because it recognizes all items in the balance of payment and their significance, rather than few selected under the PPP theory. This theory also postulates that Balance of Payment Disequilibrium can be corrected by devaluation or revaluation of a country's currency. One limitation of the BOP is that it is base on an unrealistic assumption of a perfect competition in the Foreign Exchange Market (Akrani, 2010).

Empirical Framework

Alabi (2014) examined the effect of real exchange rate fluctuation on Industrial Output in Nigeria. Their developed hypothesis was tested using the OLS regression analysis. Their result and finding discovered a positive bidirectional relationship between exchange rate and output in Nigeria and other resource dependent economies. They conclude that industrial output in Nigeria can be determined by movement in real exchange rate, capital utilization ratio, technology and available foreign exchange.

Oladele (2015) studied the effect of the foreign exchange market on economic development in Nigeria within a ten years span (1996-2005) by comparing the movement of the GDP in relations to the exchange rate of Naira and dollar and official and parallel rate data analyzed using the correlation analyses and F ratio techniques. The result showed a direct relationship between the official exchange rate and parallel exchange rate. They both jointly determine the movement of the GDP. He therefore concluded that proper management of exchange rate should be put in place as it is a major determinant of exchange rate.

Amassona and Odeniyi (2016) looked into the relationship between exchange rate variation and economic development in Nigeria emphasizing on level of international transaction and the purchasing power of the average Nigerian. The Standard Deviation method was used to estimate fluctuation inherent in the model over a period of 43 years (1970-2013). Other economic techniques such as multiple regression model, error correction model, and Johansen Co-integration were used to analyze the data. The findings showed that exchange rate has a positive but insignificant relationship with economic development in the short

run. This insignificant relationship was due to the involvement of the government on influencing exchange rate fluctuation in Nigeria.

Onyeizugbe and Umeaguges (2014) looked into the effect of exchange rate management and survival of the industrial subsector of Nigeria. The study's hypothesis was tested using the OLS regression technique with data from CBN statistical bulletin over a period of 23 years. The result showed a positive correlation between exchange rate and survival of industrial factors.

Enekwe, Ordu, and Nwoha (2013) studied the effect of exchange rate fluctuations on the manufacturing sector in Nigeria from 1985 to 2010. Data culled from the CBN Statistical Bulletin were analyzed using regression analysis and descriptive analysis. The findings showed that exchange rate fluctuation has a significantly positive relationship with the manufacturing sector of Nigeria. The researchers recommended export diversification in agriculture, agro-allied industries and agro investment as this would improve the development of the manufacturing sector.

Oladapo and Oloyede (2014) examined the relationship between foreign exchange rat management and Nigeria economic growth from 1970-2012. Data was sourced from the CBN statistical bulletin and estimated with the OLS estimation techniques within the error correction model. The result showed an insignificant but positive relationship between exchange rate and economic growth. Although variables within an effective Foreign Exchange Rate Management Policy affects Foreign Direct Investment which in turns affects economic growth.

Methodology

Model Specification

***MODEL 1*:** Agricultural Output

$$LGDPa = \beta_0 + \beta_1 LRER + \beta_2 LYF + \beta_3 LMS + \beta_4 LINT + \mu \quad (1)$$

Where:

GDPa= Output for agricultural output

RER= Real effective exchange rate

YF = Foreign Income which will be used as a proxy for Foreign Direct Investment.

MS= Money Supply

INT= Interest rate on Lending.

μ= Stochastic error term

***MODEL 2*:** Manufacturing Output Equation

$$LGDPm = \beta_0 + \beta_1 LRER + \beta_2 LYF + \beta_3 LMS + \beta_4 LINT + \mu \quad (2)$$

GDPm= Stands for Output for Manufacturing Sector

This study used secondary annual time series data which runs from 1981 to 2015, thus covering a timeframe of 34 years. The data were culled from the CBN statistical bulletin and the World development Indicator. Data for this study would be analyzed using the Ordinary Least Square Regression Analysis. This estimation techniques would enable the researcher determine the relationships among the variables.

Result

Unit Root Test

In carrying out this test, the augmented-Dickey Fuller test was used. The test is carried out to test for the stationarity of each variable. A variable is stationary when the value of the ADF statistics test is higher than the critical value at 5%.

Table 1: Unit root test result

Variables	Adf Statistics At 1st Difference	Critical Levels (5%)	Order Of Integration
LGDPa	3.773321	2.954021	I(1)(Stationary)
LGDPm	4.504725	2.954021	I(1)(Stationary)
LMS	3.392523	2.954021	I(1)(Stationary)
LRER	4.910888	2.954021	I(1)(Stationary)
LINT	4.257818	2.954021	I(1)(Stationary)
LYF	10.96493	2.954021	I(1)(Stationary)

Source: Researcher's computation Using Eviews 9

From the table above, all the variables were stationary at first difference, trend and intercept.

Ordinary Least Squares Regression Analysis

Table 2: Result for Manufacturing Sector

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	0.824782	1.395038	0.591225	0.5588
LMS	0.772035	0.073502	10.50363	0.0000
LRER	0.228249	0.095104	3.297030	0.0685
LINT	0.318929	0.228339	1.396739	0.1727
LYF	-0.074259	0.071364	-1.040574	0.3064
R-squared = 0.9915	Adjusted R-squared = 0.9904	F-statistics = 873.76	Durbin-Watson Test = 1.59	

Source: Computed by researcher Using Eviews 9

From table above, the regression analysis has an r-square of 0.991489; therefore there is a goodness of fit between the dependent variable and explanatory variables. This implies that 99% of manufacturing output is explained by the explanatory variables.

From the table also, we can see that there exists a positive significant relationship between money supply and manufacturing output. There exist also a positive relationship between real effective exchange rate and manufacturing output. For interest rate and foreign income, there exists a positive but insignificant relationship between them and the dependent variable.

The Durbin-Watson stat shows an approximate figure of 2 to show that there is no autocorrelation in the data.

Table 3: Result for Agricultural Sector

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	0.131116	1.861339	0.070442	0.9443
LMS	0.720255	0.098070	7.344277	0.0000
LRER	0.340617	0.126893	2.684292	0.0117
LINT	0.055022	0.304662	0.180600	0.8579
LYF	0.008719	0.095217	0.091565	0.9277
R-squared = 0.9904	Adjusted R-squared = 0.9892	F-statistics = 777.79	Durbin-Watson Test = 2.08	

Source: Computed By Researcher Using Eviews 9

Using the table above, the r-square of 0.990449 means that 99% of agriculture output is explained by the explanatory variables.

Also, there is a positive significant relationship between money supply and agriculture output, and also between real effective exchange rate and agriculture output. For interest rate and foreign income, there exists a positive but insignificant relationship between them and the dependent variable.

The Durbin-Watson stat shows a figure of 2 to show that there is no autocorrelation in the data.

Recommendations

From the analysis conducted in this study, it is important that the following recommendation be made to improve the output performance of sectors in Nigeria.

1. There is a need to have a realistic exchange rate in place in Nigeria to promote sectorial output performance.

2. Efforts should be made in order to ensure that monetary and fiscal policies are effective and consistent in order to boost sectorial output performance.

3. Efforts should also be made to increase the exportation in order to boost exchange rate.

4. Interest on lending should also be reduced as it negatively impacts the agricultural and service sectors.

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