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Article

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Economic Implication of Foreign Reserves Management on the Performance of the Nigerian Economy, 1995 to 2013

Anthonia U. UBOM[1*], Joseph Michael ESSIEN[2] and Uduak B. UBOM[1]

[1]University of Uyo, Nigeria
[2]Ken Saro Wiwa Polytechnic, Nigeria

The focus of this study has been on the economic implications of foreign reserves management on the performance of the Nigerian economy. Despite declaration of huge external reserves, the reserves had depleted drastically and economic indicators have not significantly improved, as they have always been highly fluctuating with marginal growth levels. This study aimed to establish relationships among economic performance indicators (capacity utilization rate, manufacturing output, growth rate of gross domestic product) and foreign reserves management variables (foreign reserves position, exchange rate, imports, exports). Relevant studies have been reviewed and the methodology implied desk and empirical research. The ordinary least square multiple regression model was used to analyze the data and it helped discover inverse relationships that exist among exchange rate, imports, exports and capacity utilization rate in Nigeria. The analysis found that exchange rate exerts significant impact on manufacturing output in Nigeria, and that there is an inverse relationship among manufacturing output, foreign reserve position, imports and exports. Moreover, positive relationships exist between foreign reserve position and both capacity utilization rate and growth rate of gross domestic product. Discoveries showed that if greater parts of Nigeria's foreign reserves were channeled to the productive sectors of its economy, capacities of productive machines would be fully utilized, domestic industries would perform well, real value of manufacturing output would increase, the domestic market would have significant positive improvements, and the growth rate of gross domestic product would be improved. On these grounds, proposed recommendations encompassed that the Nigerian government should redirect foreign exchange earnings and reserves in the productive sectors of the economy. Also, they should encourage more exports and discourage or reduce to minimum imports by reviving ailing domestic industries. The exchange rate should be properly controlled and managed by monetary authorities to aid local producers in acquiring productive facilities at cheaper rates and enhance domestic production.

Keywords: *Economic Implications, Foreign Reserves, Foreign Reserves Management, Nigerian Economy, Gross Domestic Product, Capacity Utilization Rate, Manufacturing Output*

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[*]Corresponding Author:
Anthonia U. Ubom, Department of Banking and Finance, University of Uyo, Uyo, Nigeria

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1. Introduction

Reserves serve as one of the major sources of funds for an individual, business firms and the government. Much as individuals and business organizations reserve part of their income for future use or for rainy days, so does the government of a country. Countries hold reserves in the form of domestic and foreign currencies for use in maintaining and stabilizing the economy. Some countries do accurately impose these premises, but others do not. The management of foreign reserves is vested in the hands of the government of a particular economy and the Central Bank. The case of Nigeria is worrisome as the huge foreign reserves declared keep depleting on daily basis, without corresponding development growth in the form of good infrastructural facilities, high employment rate and general improvement in the standard of living of the population. In fact, Magnus (2007, p.68) underestimates the role of foreign exchange reserves in the balance sheets of the Central Bank of Nigeria (CBN), proposing the idea that the country should develop its reserves in the face of devastating domestic activities and poverty in the nation.

Magnus (2007, p.68) argued on the adequacy of other uses for the reserve alternatives and the consistent advantages of holding excesses of reserves. Magnus (2007) also noted that a former governor of the Central Bank of Nigeria, in February 2015, described reserves management in Nigeria as "reserve squandering" challenging that the skillful and transparent handling of foreign reserves and the external sector was not established.

In addition, economic indicators in Nigeria such as capacity utilization rate, manufacturing output, the growth rate of gross domestic product, unemployment rate, inflation rate and disposable income by their fluctuating nature have shown that the country is not doing well in the management of its foreign reserves. It was on this note that this study was conducted to examine the economic implications of foreign reserves management on the performance of the Nigerian economy. In this study, foreign reserves are measured by foreign reserves position, exchange rates, imports and exports while economic performance is measured by the capacity utilization rate, manufacturing output and the growth rate of gross domestic product. This article comprises of five sections, section one which is the introductory part is about to be concluded. The second section reviews literature relevant to the study, while section three presents the research methodology. In section four, an empirical review is developed, and summary, conclusion and recommendations, are presented in section five.

2. Theoretical Review

2.1. Foreign Reserves Management Theories

The external reserves management problems which Nigeria confronted in the 1970s were used to determine the appropriate level of reserves consistent with the growth of the economy and how to maintain the value of reserves held in the sterling and the dollar assets as the exchange values of the once regarded world leading currencies were depreciating in value by the minute at the time. The depreciation in the value of the two key currencies, especially the sterling posed serious challenge to the Nigerian monetary authorities in the 1970s. This gave rise to views on the minimum level of reserves, a country should keep to avert plunging into balance of payments and monetary crises exogenously generated by the interplay of the world money market forces. These propositions were made to combat the unusual monetary crisis that engulfed and threatened the international payment system and the world economy. They are, the 'no need for international reserves proposition', 'Triffin's proposition of minimal international reserves' and the 'International Monetary Fund's (IMF) minimum international reserves determinants'.

i. **No Need for International Reserves Proposition:** Some opinions were of the simple view that under a regime of fluctuating exchange rates, normally, there should be no need for a country to keep international reserves, since exchange fluctuations would automatically maintain the international accounts in balance and prevent or eliminate any discrepancies. However, for mono-cultural economies, which export mainly agricultural commodities and lack the capacities of the big players in the international currency market there was a greater need for reserves. Such reserves should be based on the projected annual variations in the balance of trade.

ii. **Triffin's Minimum International Reserves Proposition**: The Triffin's proposition of the 1960s canvassed for a minimum foreign reserves equivalent to four months critical imports for all countries at all times, to ensure equilibrium in the world monetary arena. The concept was considered most relevant to those economies, which were dependent on import. Developing economies belong to this category and therefore require more external reserves than countries such as the United States of America (USA), Germany and the United Kingdom. The latter countries are already industrialized

and produce or have the capacity to produce virtually all their domestic needs. They need not show any evidence of adequate reserves to win the confidence of their trading partners and they are not lacking in the ability to discharge their international obligations. These evidences may be required from the developing countries before they can enter into trade or other business agreements with other countries. With the volatility which characterized the currency markets of the 1970s, Triffin's proposition was widened to include additional reserves for conducting interventions at the foreign exchange market. In line with Triffin's proposition, a two tier reserve systems were established by the United Kingdom and United States, whose countries served as international trading, international and international currencies. The first tier of reserves accommodated four months critical imports and the second tier the additional reserves for intervention at the currency market.

iii. **The International Monetary Fund's (IMF) Minimum International Reserves Determination:** In the minimum international reserves adequacy for a country as proposed by the International Monetary Fund (1993) taking both the developing and the developed countries into consideration, two types of reserve adequacy were highlighted:

- Reserves at the lowest range, which even under the most critical adverse economic situation can be applied restrictively to maintain essential imports and to service international debts, and
- Reserves at the higher range, which are adequate to allow for the servicing of international debts and the maintenance of currency convertibility.

The IMF study identified a number of factors which determined a country's reserve needs. These factors are: Magnitude of the seasonal variations in imports and exports; Extraordinary variations in imports and exports; Variability of import demands and prices; Variability of export demands and prices; Degree of a country's dependence on imports; Size of export-goods inventories; Level of reserves and the rate of short term foreign capital inflow to compensate for a short fall in reserves; Prospects of grants and long term loans to supplement reserves; and Legal and psychological restrictions imposed on the application of reserves (Onoh, 2007, pp.250-251; Pilbeam, 2006, p.269).

2.2. Nature, Concept and Determinants of Foreign Reserves

Preceding the origin of the Central Bank of Nigeria (CBN) in 1959, the nation framed a part of West African Currency Board (WACB) that no longer exists. In that period, the administration of external reserves postured practically no issues to the nation because in light of the fact that the board operated in such a way that kept such issues from emerging. Optimal organization and deployment of reserves back then did not pose any difficulty since Nigeria's non-sterling earnings were deposited in London in return for credit entries in the sterling accounts that were kept up there (Azienman, 2005, p.25). Along these lines, the 1959 Act which helped develop the Central Bank of Nigeria (CBN) required the banks to hold foreign reserves exclusively in gold and sterling. Other monetary options arose once the country joined the International Monetary Fund (IMF) in 1961. Based on the change of the Act in 1962, the bank obtained the mandate to keep up the nation's foreign currency reserves, both in sterling and non sterling assets, for example, in gold coins or bullion, bank balances, bills of exchange, and government ensured securities of nations other than Britain, as well as treasury bills of different nations (Yuguda, 2003, p.19).

As indicated by the International Monetary Fund (1993, p.46), "foreign reserves" comprise of "official public sector foreign assets" that are promptly accessible to and controlled by monetary authorities for direct financing techniques of payment imbalances and, straightforwardly directing the size of such imbalances, through intervention in the trade markets to influence the currency exchange rate, as well as for different purposes. Through the Act 1991, the authority and administration of other nations' foreign reserves was vested to the CBN. The Act provides that the CBN should hold, at any time, reserves of foreign assets consisting of gold, balance at any bank from outside the country where the currency is openly convertible; treasury bills; securities ensured by international financial institutions of which Nigeria is a part of, Nigeria's gold trench at the IMF and allocation of special drawing rights made to Nigeria by the IMF. In spite of the fact that the administration of foreign exchange reserves of a nation is the exclusive duty of the Central bank, the quantum of reserves that need to be held at any time relies upon a few exogenous components, based on its advancement targets and the predominant monetary administration challenges.

Studies propose that reserves are held for exchange and prudent motives (Mendoza, 2004, p.96). On a basic level, nations hold reserves with a specific end goal to meet surprising and transitory changes in international payments. In this specific circumstance, the optimal size of reserves relies upon the balance between the macroeconomic change costs that result if reserves are exhausted and the opportunity cost of holding such reserves (Heller, 1996, p.28). As indicated by Gosselin and Parent (2005, p.22), there is a generally stable long run reserve demand function that relies upon five classes of explanatory factors, namely,

economic size, current account vulnerability, capital account vulnerability, exchange rate flexibility, and the opportunity cost (Gosselin and Parent, 2005, p.22).

Reserve holding tends to increase with monetary size and volume of international exchanges. In this way, based on Nigeria's oil export and commodity-based production, both the level and development rate of yield are expected to impact the accumulation of the reserves. Increased vulnerability of the present and capital account ought to inspire national banks to hold more reserves, while the flexibility of the exchange rate decreases the demand for reserves. Economic theory predicts that as the opportunity cost of holding reserves increases, the demand for reserves will decrease.

Burkee and Lane (2001, p.48) state that, aside from trade openness, the financial depth and sovereign indebtedness impacts demand for international reserves. Aizenman and Marion (2004:92) emphasize the size of global exchanges; their unpredictability, exchange rate arrangements and political instability as crucial facts that determine holdings of international reserve in most East Asia. Concentrating their study on Korea, Aizenman et al. (2003, p.36) discovered confirmation of a structural break in the trend of reserve holding after Asian crisis, when financial openness and external indebtedness have turned out to be noteworthy and more strong indicators of reserve holdings, while trade openness loses its significance after the crisis.

In contrast, Elhiraika and Ndikumana (2007, p.23) proposed that in order to research the crowding out impact of external reserves on both public and private investments, real GDP growth, domestic credit to public sector (for public investment) and interest rate and exchange rate expectations (for private investment) filled in as extra factors to external reserves. Moreover, Elhiraika and Ndikumana (2007) considered monetary variables such as interest rates, inflation rates, as extra variables to external reserve.

2.3. Effects of Foreign Reserves Management on Nigeria's Economy

Aluko (2007, p.33) noted that in the mid1970s, external reserves had assumed a critical part in the Nigerian economy; it had expanded the level of money supply and, consequently, positively affected economic activities as more finances became accessible for investments in other activities. Employment also registered high levels, output and consumption expanded. With their multiplier effects for the economy combined with the proficient administration of the financial resources, the standard of living enhanced extensively. Additionally, the contribution of the manufacturing sector to GDP, which continued to plunge, was suddenly experiencing a boost. In a related report, Obaseki (2007, p.43) noticed that the uses of external reserves cannot be overemphasized. Basically, external obligations must be settled in foreign exchange. Along these lines, the stocks of reserves are imperative for the financing of external imbalances. External reserves can also help to intercede in the foreign exchange market, observe and react to unanticipated instability, and maintain natural wealth for future generations.

Correct practices of foreign reserves management are imperative since they can expand a nation's general residence to shocks as the Central Bank will be able to react successfully to money related emergencies and crises. Foreign reserves management can also offer support for macroeconomic management, however it is not a substitute for it. Also, unseemly economic policies can lead to genuine risks to the capacity to manage foreign reserves. Nonetheless, the process of foreign reserves management has traversed over the areas of hazard management, securitization and utilization of derivatives.

External reserves have essentially affected the improvement of Nigeria economy throughout the years. According to Ojukwu (2007, p.15), foreign Direct Investment (FDI) into the country increased from $2.4 million in 1997 to $540.7 million in 2002 at an exchange of ₦118 to a dollar, while the level of investment increased in 1999 from ₦4.24 billion to ₦63.74 billion in 2002. Ojukwu (2007) also mentioned that employment experiences rises from ₦4,093 in 1999, to ₦10,885 in 2002, whereas revenue allocation to States and Local Government increased from ₦156.06 billion in 1999, to ₦44.074 billion in August 2004. The federal government has also made significance progress in the war against corruption. All these are indicative of a progressive economy. The empirical work in the relationship between foreign reserve management and the performance of the Nigerian economy is being explored. This is calculated effort aimed at ascertaining the validity of theoretical work. In an attempt to prove this, the impact is categorized into two parts:

First, Osabuohien and Egwakhe (2008) noticed that holding of foreign reserves advances the stability of the exchange rate and the presence of a positive connection amongst reserves and exports. In any case, the relationship was not significant Nigeria's economy for the timeframe of 1994 to 2005, subsequently recommending that export was not properly induced for the country's foreign reserves. Second, Osabuohien and Egwakhe (2008) also showed that the negative effect of real exchange rate volatility on economic growth shrinks in countries with higher levels of financial development.

3. Research Methodology

3.1. Research Design, Sources and Types of Data

In this study, various research techniques were used, such as desk research, narrative and descriptive research design. The article's study relied on secondary data, which gathered from existing documents, from the Central Bank of Nigeria's (CBN) statistical bulletin, annual statistics from the National Bureau of Statistics (NBS), other websites, and journal articles.

Data were collected on the demand for foreign exchange, reserve position, exchange rate, import, export, capacity utilization rate, gross domestic product and per capita income in Nigeria from 1995-2013. The data were presented in tables and analyzed using descriptive analysis and multiple regression models. The analyses aimed to address the research objective and research questions proposed in this article.

3.2. Research Hypotheses

The main objective of this paper was to:

- Establish the relationships that exist among foreign reserve position, exchange rate, imports, exports and capacity utilization rate, manufacturing output and growth rate of gross domestic product.

The research hypotheses, related to the main objective, are stated below in their null form:

i. **H_0**: There is no significant relationship among foreign reserve position, exchange rate, imports, exports and capacity utilization rate in Nigeria.

ii. **H_0**: There is no significant relationship among foreign reserve position, exchange rate, imports, exports and manufacturing output in Nigeria.

iii. **H_0**: There is no significant relationship among foreign reserve position, exchange rate, imports, exports and growth rate of gross domestic product in Nigeria.

3.3. Regression Models

The multiple regression models is given as $y = a_0 + b_1x_1 + b_2x_2 \ldots\ldots + b_nx_n + e$. It was used to analyze the relationship that exists between foreign reserves management and performance of the Nigerian economy. The models are expressed as:

$$CUR = a_0 + b_1frp + b_2Exr + b_3Imp + b_4Exp + e \qquad eqn\ (i)$$

$$Mo = a_0 + b_1frp + b_2Exr + b_3Imp + b_4Exp + e \qquad eqn\ (ii)$$

$$GDPr = a_0 + b_1frp + b_2Exr + b_3Imp + b_4Exp + e \qquad eqn\ (iii)$$

where: CUR = Capacity Utilization Rate, Mo = Manufacturing Output, GDPr = Growth rate of Gross Domestic Product, FRP = Foreign reserve position, Exr = Exchange rate, Imp = Imports, Exp = Exports, x1-xn = Independent variables, b1-bn = Regression coefficient, e = Error term,
y = Dependent variables represented by CUR, Mo and GDPr.

4. Empirical Analysis

This work investigates the economic implications foreign reserves management on the performance of the Nigerian economy. Foreign reserves management can promote or inhibit the performance of the Nigerian economy. Variables of foreign reserve management and economic performance were presented and analyzed.

4.1. Data Analysis

In table 1, data on foreign reserves management and performance of the Nigerian economy are presented. It was observed that between the years 1995 and 2004, when capacity utilization rate (CUR) increased marginally from 29.3 percent to 56.5 percent, foreign reserves highly fluctuated between ₦1,611.1 million and ₦16,955 million, exchange rates consumed billions of naira to a dollar from ₦825.7 billion to ₦4,602.8 billion to the US dollar.

Table 1. *Relationships among Foreign Reserves Position (FRP), Exchange Rate (EXR), Imports, Exports, Capacity Utilization Rate (CUR), Manufacturing Output (MO) and Growth Rate of Gross Domestic Product (GDP-R) in Nigeria from 1995 to 2013*

Period	FRP (₦'M)	EXR (₦'B/US$)	Imports (₦'M)	Exports (₦'M)	CUR (%)	GDP-R (₦'M)	MO (₦'M)
1995	1,611.1	825.7	755.1	950.7	29.3	116.16	281,407.40
1996	3,403.9	1,128.2	562.6	1,309.5	32.5	42.79	293,745.38
1997	7,222.21	1,091.1	845.7	1,241.7	30.4	4.09	302,022.48

1998	7,107.5	6,891	837.4	751.9	32.4	3.48	310,890.48
1999	5,424.6	1,189.0	826.5	1,189.0	34.6	2.80	312,183.48
2000	9,386.1	1,945.7	985.0	1,945.7	36.1	3.80	329,178.64
2001	10,2671.1	2,001.2	1,358.2	1,868.0	42.7	4.60	356,994.26
2002	7,681.1	1,744.2	1,512.7	1,744.2	54.9	3.5	433,203.51
2003	7,467.8	3,087.9	2,080.2	3,087.9	56.5	10.2	477,532.98
2004	16,955.0	4,602.8	1,987.0	4602.8	55.7	7.10	527,576.04
2005	28,279.1	7,246.5	2,800.0	7,246.5	54.80	6.20	561,931.39
2006	42,298.1	7,324.7	3,108.5	7,324.7	53.30	6.9	565,821.61
2007	51,333.2	8,309.8	3,912.0	8,110.5	53.38	5.3	634,251.14
2008	53,000.4	10,166.6	5,189.8	9,861.8	53.84	6.4	672,202.55
2009	42,382.5	8,363.3	5,102.5	8,105.5	55.14	7.0	718,977.33
2010	32,339.3	11,662.5	7,614.7	11,300.5	56.22	7.9	776,332.21
2011	32,639.8	14,826.1	10,229.4	14,323.2	n/a	6.8	834,161.83
2012	43,830.4	14,736.0	9,426.1	14,250.0	n/a	6.5	842,858.51
2013	42,847.3	14,841.5	8,8081.1	14,131.8	n/a	n/a	n/a

Source: CBN Statistical Bulletin of Various Issues up to 2013

Within this period, imports rose from ₦755.1 million to ₦2,080.2 million and down to 1,987.0 million while exports rose from ₦950.7 million to ₦4,602.8 million. Still within the same period, growth rate of gross domestic product (GDP) reduced drastically from 116.16 percent to 7.10 percent while manufacturing output increased marginally from ₦281,407.40 million to ₦527,576.04 million. However, from the year 2005 to 2013, capacity utilization rate rose from 54.80 percent to 56.22 percent in the year 2010, growth rate of GDP rose from 6.20 percent to 6.5 percent, while manufacturing output rose from ₦561,932.39 million to ₦842,858.51 million. The implication here is that the rise in the values of foreign reserves variables is not commensurate with the growth levels in the variables of economic performance, meaning that most foreign reserves are not used for productive purposes that would have improved the domestic economy. They were probably directed at current consumption as reflected in the low short run increased in capacity utilization on manufacturing output and growth rate of gross domestic product.

4.2. Relationship Analyses

To test the strength and direction of the relationship existing among the variables studied in this work, the hypotheses earlier formulated in section 3.2 were tested using the multiple regression models and additional results are presented in appendices A, B and C. The study examined of foreign reserves management on the performance of the Nigerian economy measured by capacity utilization rate, manufacturing output and growth rate of gross domestic product and various measures of foreign reserves.

The correlation coefficient (R) for model one is .760 while the coefficient of determination (R^2) is .557 meaning that there exist a marginal positive relationship between capacity utilization rate (CUR) and variables of foreign reserves management. The change in CUR can be explained by foreign reserves to only 55.7% extent while other factors explain the remaining 44.23% change. The intercept of the regression model is 38.030 while the slope shows 1.91, -.190, -.002 and -.016 for measures of foreign reserves. This implies that one naira increase in reserve position increases the capacity utilization rate by 1.91%, a similar increase in exchange rate, imports and exports, reduces capacity utilization by -0.19%, -0.2% and -1.6%, respectively. In other words, inverse relationships exists between exchange rate, imports, exports and capacity utilization rate in Nigeria within this period. Considering the t_{cal} values of -.76, .587, -.526, -.499, and t_{tab} of 1.75, this shows that none of the foreign reserves variables significantly impacted capacity utilization rate. More information about this model are presented in Table 2 and Appendix A.

Table 2. *Regression coefficients for foreign reserves management with Capacity Utilization Rate as dependent variable*

Model	**Unstandardized coefficients**		**Standardized coefficients**	**t**	**Sig**
	B	Std. Error	Beta		
constant	38.030	5.201		7.311	.000
Foreign Reserve	1.91	.000	0.18	-.76	.940
Position					
Exchange Rate	-.19	.32	6.341	.587	.569
Import	-.002	.005	-.438	-.526	.609
Exports	-.016	.032	-5.179	-.499	.629

a. Dependent variable: CUR = Capacity Utilization Rate

In model two (Table 3), the value of (R) is .976 while R^2 is .952. These values show a high positive relationship between manufacturing output and the variables of foreign reserves management. The change in manufacturing output is explained by foreign reserves variables to the tune of 92.5% while other factors explained the remaining 4.8% change. The intercept of the model is 306,116.592 while the slope shows -1.013, 172.045, -197.742 and -131.009 respectively. This means that an increase of one naira in exchange rate increases manufacturing output by ₦17,204.5 million. Other variables showed inverse relationships with manufacturing output. Considering the t_{cal} of 4.239 compared with t_{tab} of 1.74, this shows that exchange rate exerts significant impact on manufacturing output. More information about this model are presented in Table 3 and Appendix B.

Table 3. *Regression coefficients for foreign reserves management with Manufacturing Output as dependent variable*

Model	**Unstandardized coefficient**		**Standardized coefficient**	**t**	**Sig**
	B	Std. Error	Beta		
constant	306116.592	27348.513		11.193	.000
Foreign Reserve	1-.013	.147	-.006	-.090	.929
Position					
Exchange Rate	172.045	178.961	4.239	.961	.354
Import	-107.742	20.163	-.167	-.533	.603
Exports	-131.009	179.886	-3.102	-.728	.479

a.Dependent variable: MO = Manufacturing output

In table 4, the values of R and R^2 for model three are .457 and .209, respectively meaning that changes in the growth rate of gross domestic product (GDPr) are explained by foreign reserves to a 20.9% extent, while 79.1% change in GDPr can be explained by other factors not included in the model. The intercept of the model is 7.332 and the slope shows -2.077, -1.42, -.012, and .139. This means that one naira increase in foreign reserves position, exchange rate and imports reduces the growth rate of GDP by -207.7%, -1.42% and -1.2% respectively. One naira increase in exports increases growth rate of gross domestic product by 13.9% only. Its t_{cal} of 1.393 compared with t_{tab} of 1.74 shows that even the exports does not exert significant impact on growth rate of gross domestic product. More information about this model are presented in Table 4 and Appendix C.

Table 4. *Regression coefficients for foreign reserves management with Growth rate of Gross Domestic Product as dependent variable*

Model	**Unstandardized coefficient**		**Standardized coefficient**	**t**	**Sig**
	B	Std. Error	Beta		
constant	7.332	15.169		.483	.637
Foreign Reserve	-2.077E-005	.000	-.074	-.255	.803
Position					
Exchange Rate	.-1.42	.099	-25.650	-1.435	.175
Import	-.012	.011	1.385	1.093	.294
Exports	.139	.100	24.053	1.393	.1987

a.Dependent variable: GDPR = Growth rate of Gross Domestic Product

5. Discussion, Conclusion and Recommendations

Effective and efficient management of foreign reserves is vital to the development of any economy. This is because it helps promote the development and growth of such a nation. Where the reserves are wrongly or poorly managed, we observed high fluctuations in the economic indicators, as discovered in this paper. It was discovered that the variables of foreign reserves could explain changes in capacity utilization to the tune of 55.7%. This relationship is marginal, meaning that foreign reserves variables affect changes in Nigeria's productive sectors marginally.

Secondly, a direct but insignificant relationship exists between foreign reserve position and capacity utilization. This means that very little of Nigeria's foreign reserves is directed at improving the capacity of productive machines. In Nigeria, the reserve positions are not stabilized to attract foreign investments that would have encourage the use of these machineries. On the other hand, the inverse relationship among exchange rate, imports, exports and capacity utilization rate means that the factories cannot acquire foreign exchange to acquire needed raw materials, tools and facilities for production to full capacity.

Thirdly, a significant and positive relationship existing between exchange rates and manufacturing output in Nigeria means that increase in the naira exchange rate gives more attraction to suppliers of productive inputs as they make more profits from their exports of the productive inputs into the Nigerian economy. The willingness of these suppliers to supply more of these facilities as a result of the increase in exchange rate tends to increase outputs in domestic economy even though the cost of production may increase.

Fourthly, an inverse relationship among foreign reserve position, imports, exports and manufacturing output implies that the foreign reserves in Nigeria and earnings from exports are not directed at the productive sectors of the economy. Probably, they are kept and piled up mostly for correction of balance of payments imbalances instead of channeling them to the productive sectors. For imports, Nigerians and its residents prefer to buy imported products, causing the domestic market to slump.

On the fifth point, independent variables in model three have explained only 20.9% changes in the growth rate of gross domestic product. One of such changes is that insignificant but direct relationship exists between exports and growth rate of gross domestic product in Nigeria. In this case, promoting exports in Nigeria do not lead to significant increase in the growth rate of gross domestic product (GDPr). This is because when the foreign exchange are earned, they are accumulated and probably mismanaged, without directing them at productive purposes, because of these, the GDPr would not improve significantly. This has been confirmed in the significance test where t_{cal} of exports is 1.393 compared to t_{tab} of 1.74.

Lastly, the situation is the same as earlier explained above, where inverse relationships exist among foreign reserves, exchange rate, imports and growth rate of gross domestic product in Nigeria.

On the basis of these discussions, it was concluded that if a greater part of Nigeria's foreign reserves are channeled to the productive sectors of the Nigerian economy, capacities of productive machines would be fully utilized well, and domestic industries would perform well, the real value of the manufacturing output would increase (not on nominal bases) and the domestic market would benefit of a significant improvement with varieties of goods and services that satisfy consumers, thereby reducing reliance of imported goods and services and finally the growth rate of gross domestic product will improve.

On these grounds, the following recommendations were proposed:

a. Foreign exchange earnings should be directed or channeled to the productive sectors of the Nigerian economy.
b. Foreign reserves should not be accumulated for financing balance of payments imbalances alone or misappropriated. A greater percentage of it should be channeled to the productive sector.
c. Exports should be encouraged while imports should be discouraged or reduced to the barest minimum.
d. The exchange rate should be properly controlled and managed by monetary authorities so that local producers can acquire productive facilities at cheaper rates to enhance domestic production of goods and services.
e. Nigerians and other residents should patronize made in Nigeria products instead of imported goods.
f. Domestic production should be encouraged for an improved growth in gross domestic product.
g. Foreign earnings from the promotion of exports should be directed at productive purposes to enhance the growth of gross domestic product.

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Appendices

Appendix A. Relationships that exist among foreign reserve position, exchange rate, import, export, and capacity utilization rate in Nigeria

Table A1. *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	760[a]	.557	.424	8.42042

a. Predictor: (constant), Foreign Reserve Position, Exchange Rate, Import, Exports

Table A2. *ANOVA[a]*

Model	Sum of Square	df	Mean Square	F	Sig
Regression	1065.467	4	266.367	3.757	0.37[b]
Residual	77.938	11	70.903		
Total	1845.405	15			

a.Dependent variable: CUR = Capacity Utilization Rate

b. Predictor: (constant), Foreign Reserve Position, Exchange Rate, Import, Exports

Appendix B. Relationships that exist among foreign reserve position, exchange rate, import, export, and manufacturing output in Nigeria

Table B1. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	976[a]	.952	.937	49526.46182

a. Predictor: (constant), Foreign Reserve Position, Exchange Rate, Import, Exports

Table B2. *ANOVA[a]*

Model	Sum of Square	df	Mean Square	F	Sig
Regression	6304268854.126	4	157606717213,351	64.254	.000
Residual	31887315462.414	13	2452870420.186		
Total	662314184316.539	17			

a. Dependent variable: MO = Manufacturing output

b. Predictor: (constant), Foreign Reserve Position, Exchange Rate, Import, Exports

Appendix C. Relationships that exist among foreign reserve position, exchange rate, import, export, and growth rate of GDP in Nigeria

Table C1. *Model summary*

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	.457[a]	.209	-.034	27.47040

a.Predictor: (constant), Foreign Reserve Position, Exchange Rate, Import, Exports

Table C2. *ANOVA*[a]

Model	Sum of Square	df	Mean Square	F	Sig
Regression	2593.436	4	648.359	.59	.514[b]
Residual	9810.100	13	754.623		
Total	12403.535	17			

a. Dependent variable: GDPR = Growth rate of Gross Domestic Product

b. Predictor: (constant), Foreign Reserve Position, Exchange Rate, Import, Exports