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Dynamic Simulation on Import Demand Model: Empirical Evidence from Nigeria

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Abstract: *The paper dwells on dynamic simulations for import demand model in Nigeria. The work uses the methodology of Error correction model (ECM) in conjunction with diagnostic tests of variables using Augmented Dickey–Fuller unit root tests and Johansen Co-integration tests to estimate the model for robust policy recommendations. Using the import as the dependent variable and NGDP, reserves and exchange rate as the independent variables, the results from the study show that Domestic economic expansion tends to improves exchange rate in Nigeria. Foreign reserves also have significant influence on exchange rate as increase in the reserves served well to appreciate the exchange rate on the short run. Subsequently, dynamic simulations were carried out on E-Views 8 for robust policy recommendations. The results of the simulations show that changes in exchange rates, variations in imports and GDP resulted from the change in government policy on reserve management indicating that government policy on reserve management affects exchange rates, the imports, GDP and other related variables in Nigeria. Based on the findings, the work recommends that strict foreign reserves policy should be implemented since this variable has significant influence on exchange rate. Similarly, the nation should intensify agricultural reformation, industrial growth, and develop mineral resources to promote the diversification of the economy to improve external reserves.*

Keywords: *Exchange Rate Fluctuation, External Reserve, Imports, Real GDP, ECM*
JEL classification: *C22, C58, E43*

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I. Introduction

Over the years, Nigeria has implemented numerous strategies and measures in the management of its imports, exchange rate and external reserves. Although very little was achieved because the structure in place could not support sustainability, hence there is need for this study on dynamic simulation of these macroeconomic variables to chart the way forward from the nation's past experience. The World Bank (2014) stated that "mono product economies, especially those dependent on oil would remain vulnerable due to volatility of oil prices". Since the 1970s, Nigerian economy has persistently depended on oil as the main source of foreign exchange earnings with the attendant cycles of economic booms and bursts. Nigeria's dependence on oil for over 90 per cent of its foreign exchange earnings makes its capital account vulnerable to the fluctuations in crude oil prices. This, in addition to its high taste for foreign goods and import bills contributed to the fluctuations in the level of external reserves over the years, and consequently, the way the external reserves are being managed.

As at May 20, 2014, Nigeria expressed concern over the drop in fiscal buffers stating that the development had exposed the economy to weaknesses arising from both domestic and external shocks. This had drawn the attention of monetary authorities to the regime of persistently high interest rates as well as elevated demand for foreign exchange.

The CBN as part of its core function is mandated to ensure monetary and price stability, promote a sound financial system and maintain external reserves to safeguard the international value of the legal tender currency in Nigeria. Macroeconomic stability is itself a function of price stability which is the ability of a

Central Bank to moderate inflation, attain stable interest and exchange rates and create conducive investment climate for long term growth and development. How well the variables in a model track real values in the economy poses problems to researchers in evaluation, forecasting, simulation and validation. This is the subject of concern to the researcher and this study sets out to carry out policy simulation on selected macroeconomic variables on Nigeria's economy for robust policy recommendations.

The paper is divided into five sections. Section one opens with the introduction while section two presents review of relevant literature on subject matter. Section three focuses on methodology adopted for estimation, while section four looks at the presentation of results and discussions. The section five contains conclusions and policy recommendations of the paper.

II. Literature Review

The relationship between external reserves, exchange rate and imports is well established in the literature as the variables influence each others. Indeed many empirical studies now use reserves volatility as a proxy for exchange rate and both influence imports. The International Monetary Fund (IMF) in 1999 started including reserves volatility among the exchange rate determinants. Other research papers that have linked exchange rates, imports and external reserves are Abdullateef and Waheed (2010), Rizvi (2011) and Emmanuel (2013).

The discussions and contributions dating the period preceding the flexible exchange rate regimes were restricted to the relationship between external reserves and global liquidity. But with the introduction of market driven exchange rate and the development of the capital markets around the globe in the 1970s, opinion on such issues of sufficiency of international reserves vis-à-vis the global liquidity were usually discarded. Presently, the drift in the developing countries is the accumulation of reserves, predominantly in the Asian and African countries. Other related arguments according to experts and financial regulators is that reserves holdings safeguard the value of the domestic currency and acts as store of value to accumulate excess wealth for future consumption purposes in order to boost a country's credit worthiness and provide a cushion at a time when access to the international capital market is difficult or not possible, i.e. provides a buffer against external shocks.

Eliza et al (2008) studied both the short-run and long-run demand for international reserves in Malaysia for the period 1970-2004 using the autoregressive distributed lag (ARDL) bounds testing approach. The result suggests that current account balance and short-term external debt significantly affect the demand for international reserves both in the long run and short run.

It could be summarized from the literature that there exist a long run relationship between exchange rate and external reserves. Similarly, external reserves accumulation is found to be a veritable tool for exchange rate management, it helps to improve the flow of investments into an economy, as well as expressed the credit worthiness of a nation amongst others.

The post Asian crises gave an insight to reserve accumulation and management; in the sense that the Asian Central Bank had to intervene to prevent exchange rate appreciation in order to promote an export led growth (Folkerts and Garber, 2004). However, Aizenman (2012) examined the impact of international reserves in the short and intermediate-term on the real exchange rate, due to commodity terms of trade shock. His finding showed that international reserves are important tools to reduce real exchange rate volatility. Beak (2004) was of the opinion that regardless of other causes in the demand for reserves, countries size, real openness and financial openness were the real determinants of reserves holdings, while opportunity cost and export volatility are not significant.

Gurd (2012) used the threshold error correction model (ECM) and the threshold granger causality test to examine the relationship between international reserves and exchange rates in the Turkish economy. The author found that the international reserves and exchange rate of Turkey are jointly determined and affected, indicating the existence of high degree of correlation between them.

Ahmad and Pentecost (2009) examines the long-run relationship between exchange rate and international reserves in a sample of African countries for 34 years, using the threshold co-integration technique. They found that a long-run dynamics exist between the series. Although it was evident in their study that the threshold point estimate varies from country to country, as a result of different country's exchange rate regimes. They concluded that floating regimes seem to have higher threshold than the pegged regimes.

Gokhale & Raju (2013) also studied the "Causality between Exchange Rate and Foreign Exchange Reserves in the Indian Context". Contrary to most research works, their findings showed that the huge foreign exchange reserves do not essentially exhibit a long-run or short-run correlation with the exchange rates. This could be attributed largely to the anticipation of overcoming financial crisis than a tool for regulating the exchange rates. It could also be looked upon as a face lift to the Indian economy through enhanced credit ratings, which in turn, would attract investors to India in the form of foreign direct and portfolio investments, thereby supplying the much needed capital that would help stimulate economic growth.

Daud and Ahmad (2013) considered the cost of international reserves management for Malaysia due to the unprecedented increase of reserves among the crisis hit countries of Asia from 1997 to 1998. Thus, holding international reserves positively affects most of the nation and develops the country's capacity to guard itself from sudden shock. The results also suggested that Malaysia should hold international reserves of at least 4.96 months of imports cover, which is higher than the conventional rule of thumb (3 months of imports cover).

*C*etin (2013) adopted the granger causality analysis to investigate China's external debt components of foreign exchange reserves and economic growth rates after adapting the open economy system from 1982-2009. The study found that China's short term external debts, foreign exchange reserves, total external debts have significant impact on her economic growth rates within the period under study. The result from the impulse response and variance decomposition analyses implies that her foreign exchange reserves innovation impacts on economic growth rates.

Tariq et al (2014) used the mercantilist approach to determine the interaction between the real exchange rate and foreign exchange reserves for Pakistan during 1973 – 2008. The analysis they carried out revealed that the reserves holdings in the case of Pakistan were as a result of the export led growth strategies through real exchange rate depreciation. In the contrary, Oputa and Ogunleye (2010) adopted Shcherbakov (2002) model to estimate the optimal level of international reserves for Nigeria along the line of the drivers of external reserves. They explained that the accumulation of reserves in recent period were in line with global trend, especially in emerging economies and concluded that the country's external reserves during their study period could not be adjudged to be sufficient or in excess of expectations.

Ajibola et al (2015) studied the long-run relationship between exchange rate and external reserves in Nigeria during 1990Q1 – 2012Q4 using the two-regime threshold vector error correction model (TVECM) via maximum likelihood procedure. They confirmed the existence of threshold co-integration between the variables in Nigeria, as against linear co-integration.

Exchange Rate: The early model of exchange rate i.e. 'the monetary model', asserts that exchange rate depends on fundamental economic factors like money supplies and output levels of an economy. When the fundamentals are combined with market expectations of expected exchange rates, this model gives the standard value of current exchange rate. When analyzing fluctuations in exchange rate, journalists often use the outcomes of monetary model. Similarly, when Wall Street analysts are asked to defend their exchange-rate predictions, they will typically resort to some variant of monetary model. The model is popular because it provides intuitive interrelationships between economic principles and it is based on standard macroeconomic reasoning. The rule behind monetary model is simple i.e. exchange rates are influenced by relative price levels between the two nations. When the cost of goods and services are twice as much in United States dollars as against the other foreign currency, it means that US$2 will purchase one unit of the foreign currency.

Leo (2006) explores the welfare implications of a small country's exchange rate regime, for the small country itself, and for a large country, the currency of which the small country potentially pegs to. A two-country 'dynamic stochastic general equilibrium' model is developed for the analysis. Floating exchange rate regimes was modeled as Taylor type interest rate rules, with different feedback coefficients on inflation and output. He shows that compared to a fixed exchange rate regime, both countries will be worse off if the small country adopts interest rate option with a large feedback coefficient on output and a small feedback coefficient on inflation. He also shows that it is fundamental for the small country not to respond to output fluctuations in its interest rate rule, as it will generate costly fluctuations of inflation.

Export-led-growth is an outward orientation development strategy to speed up the degree of 'total factor productivity growth' and encourage FDI. For instance, the competitive pressure in global market may lead to improved product quality and force domestic producers to reduce inefficiencies. It reduces the allocative wastage of exchange control through foreign exchange liberalization, which is fundamental component of

'export-led-growth strategy'. This principle revolves around the promotion and expansion of exports. Arguments adduced to support 'export-led-growth hypothesis' in literature include the following:

- Exports growth leads to a rise in demand for a country's output and accelerate real output
- Specialization in the generation of export products would be facilitated through export expansion and this might enhance the degree of productivity and that is acquisition of skills in the export sector.
- The Country can export to global markets, such nation enjoys export efficiency-force, increases 'motivation and competition' thus lowering cost curves for the firm.
- Feder (1983, cited in Idowu 2005), adduced that the marginal value to economy of a given unit of investment in export growth is higher than similar investment in the non export sector.
- A trade led strategy attracts foreign exchange. It allows domestic industries to enjoy the inherent benefits of internal economies of large scale.

Some studies reviewed on model evaluation and validity required simulations but there are few studies on this subject of interest.

Model Specification

The Nigerian economy consists of various sectors that are interrelated and macroeconomic variables play dominant role in the economy through numerous transmissions among the blocks. This work reviews the economic sectors that contain endogenous and exogenous variables. The variables are linked to one another through 'behavioral equations and identities' for Nigeria's economy. The import demand equation is modeled based on economic theory for model building (Klein et. al., 1999). General description of this model is briefly explained here.

Trade block is designed to pass on external shocks into the economy. Imports in current prices include exports in current prices, real exchange rate, aggregate demand in current prices as a sum of private and government consumption and total investment as explanatory variables. Imports are hypothesized to depend on income, negatively on exchange rate and positively on the level of international reserves allowing for lagged adjustment.

$MPORT = F(NGDP, RES, EXRT, MPORT_{-1}, Ut); f1, f2, f3, > 0;$ *(3.1*)

Where, MPORT = Imports, NGDP = Nominal gross domestic product, RES = External reserves,

Research Methodology and Estimation Procedure

This paper carries out dissertation of import demand model of the Nigerian economy and regression analysis with simulations using Co-integration, and Error Correction Mechanism (ECM). The researcher's choice of technique is centered not only on the computational simplicity but also based on the optimal properties. Currently, modern economic investigation involves the adoption of econometric method in which appropriate statistical and econometric tests can be conducted to ensure the validity and reliability of data and result, for accurate projection and forecast of the phenomenon in question. Co integrated Test would be utilized to test for the 'long run relationship' among the variables. Johansson co-integration test would be utilized in co integration analysis and the 'normalized co-integrating coefficient' shall be ascertained to examine the nature of the long run relation between the variables estimated in the model. Data range from 1981 – 2015 from Central Bank of Nigeria Statistical Tables were used for the analysis.

Presentation and Interpretation of Results

The ECM estimates of the import demand function is shown in Table 4.2 below. In the results, nominal GDP reports insignificant impact at levels but the lags have significant negative impact on import demand. This result is rather appalling since GDP expansion is expected to increase import. Apparently, the level of domestic absorption is low in the short run. External reserves has a reducing effect on import demand in the short run, while the exchange rate tends to also reduce import demand in the short run. Thus, depreciation in the naira has a debilitating effect on the demand for import in Nigeria. The ECM term is negative, significant and quite high at -0.86. The value indicates that adjustment to long run equilibrium is rapid.

Table 4.2: Results of Short-Run Relationship for MPORT

Variable	Coefficient	Standard Error	T-Ratio[Prob]
$\Delta MPORT_{t-1}$	.13694	.096087	1.4251[.157]
$\Delta MPORT_{t-2}$	.30916	.082300	3.7565[.000]
ΔNGDP	.016307	.043009	.37916[.705]
$\Delta NGDP_{t-1}$	-.19853	.044367	-4.4747[.000]
$\Delta NGDP_{t-2}$	-.25815	.050625	-5.0993[.000]
ΔRES	-8.2455	1.5722	-5.2444[.000]
ΔEXRT	-2526.2	1453.3	-1.7382[.085]
INPT	34201.9	14731.9	2.3216[.022]
ecm_{t-1}	-.86245	.10484	-8.2267[.000]
R-Squared	.51341	R-Bar-Squared	.47072
S.E. of Regression	105152.5	F-stat.	15.0353[.000]
DW-statistic	1.9663		

Source: Author's Work from E-Views 8

The long run import demand function indicates that exchange rate does not matter in explaining import demand in the long run. On the other hand, GDP matters and has a positive effect (against the negative short run affect) on import demand in Nigeria. Rising domestic income levels tend to boost import demand in Nigeria.

Table 4.2.1: Results of Long-Run Relationship for MPORT

Variable	**Coefficient**	**T-Ratio[Prob]**
NGDP	.31178	36.1115[.000]
RES	-9.5605	-6.9558[.000]
EXRT	-400.9926	-1.2348[.219]
INPT	39656.6	2.4143[.017]

Source: Author's Work from E-Views 8

The estimated Import demand equation is:

MPORT = 39656.6 + 0.31178*NGDP - 9.5605*RES - 400.9926*EXRT

(2.4142) (36.11115) (-6.9558) (-1.2348)

R^2 = 0.5134 Adj. R2= 0.4707 F = 15.0353 DW = 1.9663

4.2 Dynamic Simulation

This section creates experiments or policy scenarios and analyzes the effect of policy increase in international reserves as exogenous variable on other targeted variables from 2009 to 2015. The dynamic simulation was done with US$60 million sustained increase in reserves over the period 2009– 2015. The results of the control solution (without an increase in reserve) and the disturbed solution (with increase in reserve) for the key targeted variables are quite interesting with varying magnitude as reported in Table 4.4 below.

Table 4.4: Effect of $60 Million Increase in Reserves on Import

Periods	**Control Solution**	**Disturbed Solution**	**MPORT-Increase**	**% Increase**
2009Q1	1116317	1514196	397879.3	35.64215245
2009Q2	1072817	1564219	491401.8	45.80480253
2009Q3	1336873	1618171	281297.8	21.041472
2009Q4	813760.5	1679091	865330.46	106.3372353
2010Q1	1183872	1771066	587194.46	49.59950807
2010Q2	1456640	1902731	446091.11	30.62466661
2010Q3	1347491	2037131	689639.7	51.17952895
2010Q4	1250193	2104276	854083.5	68.31615931
2011Q1	1129763	2110023	980260.45	86.76694497

2011Q2	1250695	2129217	878522.33	70.24274998
2011Q3	1427142	2196279	769136.98	53.8935137
2011Q4	1308860	2268978	960117.52	73.3552227
2012Q1	1995674	2423058	427384.34	21.41554246
2012Q2	1771462	2624697	853235.3	48.1656081
2012Q3	2068840	2731490	662649.86	32.03001755
2012Q4	1778681	2945305	1166624.28	65.58930262
2013Q1	2233498	3065213	831715.49	37.23825463
2013Q2	2336381	3278376	941994.57	40.31852667
2013Q3	3180388	3372024	191635.62	6.025541447
2013Q4	2484907	3500910	1016003.09	40.88696787
2014Q1	2649411	3573139	923727.67	34.86539291
2014Q2	2611600	3680250	1068649.99	40.91935924
2014Q3	1764122	3810917	2046794.93	116.0234297
2014Q4	2083899	3905086	1821186.92	87.39323979
2015Q1	3589120	4009754	420633.99	11.719697
2015Q2	3780460	4215602	435142	11.5102924
2015Q3	4475080	4253713	-221367.2	-4.94666442
2015Q4	3949081	4385179	436097.69	11.04301623

Source: Author's Work from E-Views 8

The simulation showed varying magnitude of changes in imports over the periods. The quarterly variations in imports resulted from the change in government policy on reserve management. This indicates that government policy on reserve management affects the imports in Nigeria.

Table 4.5: Effect of $60 Million Increase in Reserves on GDP

Periods	**Control Solution**	**Disturbed Solution**	**GDP Increase**	**% Increase**
2009Q1	4740806.18	5995622	1254815.82	26.46841
2009Q2	4853841.72	6143145	1289303.28	26.56253
2009Q3	5524382.46	6452863	928480.54	16.80696
2009Q4	5538287.3	6768268	1229980.7	22.20868
2010Q1	5535964	7483891	1947927	35.18677
2010Q2	5720249	8198954	2478705	43.33212
2010Q3	6461895	8692838	2230943	34.52459
2010Q4	6578221	8148820	1570599	23.87574
2011Q1	5460764	7533785	2073021	37.96211
2011Q2	5872695	7625848	1753153	29.85261
2011Q3	6608436	8222039	1613603	24.41732
2011Q4	6852343	8469208	1616865	23.5958
2012Q1	7426524	9572421	2145897	28.89504
2012Q2	8043198	10509840	2466642	30.66743
2012Q3	9055633	9991280	935647	10.33221
2012Q4	9459399	11476270	2016871	21.32134
2013Q1	8553988	11085630	2531642	29.59604

2013Q2	9444841	12474720	3029879	32.07972
2013Q3	9856176	11770990	1914814	19.42755
2013Q4	9554855	12472870	2918015	30.53961
2014Q1	9142859	12280050	3137191	34.31302
2014Q2	9840227	12898140	3057913	31.07563
2014Q3	10967273	13601480	2634207	24.0188
2014Q4	10593742	13655100	3061358	28.8978
2015Q1	9493779	14146630	4652851	49.00947
2015Q2	10204838	15544760	5339922	52.32736
2015Q3	11166026	14259540	3093514	27.7047
2015Q4	11532122	15402390	3870268	33.56076

Source: Author's Work from E-Views 8

The simulation showed positive changes in the GDP over the periods. The quarterly variations in GDP resulted from the change in government policy on reserve management. This result shows that government policy on reserve management impacts directly on the GDP in Nigeria.

Table 4.6: Effect of $60 Million Increase in Reserves on Exchange Rate

Periods	**Control Solution**	**Disturbed Solution**	**EXRT-Increase**	**% Increase**
2009Q1	128.23	128.5144	0.2844	0.221789
2009Q2	127.65	129.9983	2.3483	1.83964
2009Q3	126.58	131.6743	5.0943	4.024569
2009Q4	120.87	132.5802	11.7102	9.68826
2010Q1	118.04	132.0069	13.9669	11.83234
2010Q2	117.84	131.104	13.264	11.25594
2010Q3	117.75	130.4808	12.7308	10.81172
2010Q4	120.65	131.2988	10.6488	8.826191
2011Q1	146.88	134.012	-12.868	-8.76089
2011Q2	147.76	136.2963	-11.4637	-7.75832
2011Q3	150.92	137.0914	-13.8286	-9.16287
2011Q4	149.96	137.237	-12.723	-8.48426
2012Q1	128.21	139.3276	11.1176	8.671398
2012Q2	128.21	141.3781	13.1681	10.27073
2012Q3	128.21	143.4525	15.2425	11.8887
2012Q4	128.21	144.9931	16.7831	13.09032
201331	128.21	146.9334	18.7234	14.6037
2013Q2	128.21	148.5216	20.3116	15.84245
2013Q3	128.21	151.1413	22.9313	17.88573
2013Q4	128.21	152.9888	24.7788	19.32673
2014Q1	128.21	155.2836	27.0736	21.11661
2014Q2	128.21	157.4074	29.1974	22.77311
2014Q3	128.21	158.9598	30.7498	23.98393
2014Q4	128.21	160.7927	32.5827	25.41354
2015Q1	157.31	162.4297	5.1197	3.254529
2015Q2	157.31	164.1224	6.8124	4.330557
2015Q3	157.31	166.0644	8.7544	5.565063
2015Q4	157.26	167.8521	10.5921	6.735406

Source: Author's Work from E-Views 8

The simulation showed varying magnitude of changes in the EXRT over the periods. The quarterly variations in EXRT resulted from the change in government policy on reserve management. This result affirms that government policy on reserve management affects the EXRT in Nigeria.

4.3 Policy Simulation

This section examines the effect of alternative policy scenarios using increase in international reserves as exogenous variable on the GDP from 2010 to 2015. The effect of $60 million sustained increase in reserves over the period 2010 – 2015 was simulated. The result of the control solution (without an increase in reserve) and the disturbed solution (with increase in reserve) for the key targeted variable is reported below. The impact multiplier of the increase in GDP is 0.0325 while the dynamic GDP multiplier at the end of the period is 0.0645

Table 4.7: Results of Policy Simulation: Dynamic GDP Multiplier for Reserve Variation (2010 – 2015)

Periods	Control Solution	Disturbed Solution	GDP increase	GDP Multiplier
2010Q1	5535964	7483891	1947927	0.03246545
2010Q2	5720249	8198954	2478705	0.04131175
2010Q3	6461895	8692838	2230943	0.037182383
2010Q4	6578221	8148820	1570599	0.02617665
2011Q1	5460764	7533785	2073021	0.03455035
2011Q2	5872695	7625848	1753153	0.029219217
2011Q3	6608436	8222039	1613603	0.026893383
2011Q4	6852343	8469208	1616865	0.02694775
2012Q1	7426524	9572421	2145897	0.03576495
2012Q2	8043198	10509840	2466642	0.0411107
2012Q3	9055633	9991280	935647	0.015594117
2012Q4	9459399	11476270	2016871	0.033614517
2013Q1	8553988	11085630	2531642	0.042194033
2013Q2	9444841	12474720	3029879	0.050497983
2013Q3	9856176	11770990	1914814	0.031913567
2013Q4	9554855	12472870	2918015	0.048633583
2014Q1	9142859	12280050	3137191	0.052286517
2014Q2	9840227	12898140	3057913	0.050965217
2014Q3	10967273	13601480	2634207	0.04390345
2014Q4	10593742	13655100	3061358	0.051022633
2015Q1	9493779	14146630	4652851	0.077547517
2015Q2	10204838	15544760	5339922	0.0889987
2015Q3	11166026	14259540	3093514	0.051558567
2015Q4	11532122	15402390	3870268	0.064504467

Dynamic GDP-Multiplier = 0.0645

Source: Author's Work from E-Views 8

The result showed positive changes in the GDP over the periods. The GDP Multiplier showed significant variation over the periods. The dynamic GDP multiplier at the end of the period is 0.0645. The quarterly

variations in GDP resulted from the change in government policy on reserve management. This result shows that alternative government policy on reserve management impacts on the GDP in Nigeria.

III. Summary, Recommendation and Conclusion

This work analyzed the import demand model of the Nigerian economy with Dynamic simulations for robust policy. The work focused on model estimation, dynamic and policy simulations using Co-integration and ECM on Eviews-8. The analysis and results showed the following findings. Domestic economic expansion tends to improves EXRT in Nigeria. Foreign reserves also have significant influence on EXRT and shows that increase in the reserves serve well to appreciate the EXRT on the short run.

From the findings, the following recommendations are hereby made:

- Government should undertake domestic economic expansion schemes to improve EXRT in Nigeria.
- Similarly, strict foreign reserves policy should be implemented since this variable has significant influence on exchange rate.

Based on the research, the following conclusions are made. The quarterly variations in imports resulted from the change in government policy on reserve management. This indicates that government policy on reserve management affects the imports in Nigeria. The quarterly variations in EXRT resulted from the change in government policy on reserve management. This result affirms that government policy on reserve management affects the EXRT in Nigeria.

Recommendation for Further Studies

There is dire need for more in-depth study on the dynamic simulations of macroeconomic model of the Nigerian economy for policy analysis for expansion and sustained development in Nigeria using multiple analytical techniques. In doing this, it is hereby suggested that further empirical studies and researches on dynamic simulation of macroeconomic model of Nigerian economy are required to fully analyze the concepts affecting policy issues to address the persistent problem of growth without development in Nigeria.

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