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Impact of Capital Flight on Economic Growth: Evidence from Nigeria

Umaru Samaila Mazadu[1] & Mohammed Dansabo Usman[2]

[1]*Department of Economics, Borno State University, Borno State, Nigeria.*
[2]*Department of Economics & Development Studies, Federal University Kashere, Gombe State, Nigeria.*

Correspondence Email: mazadu945@gmail.com

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Abstract
This paper examines the impact of capital flight on economic growth in Nigeria within the context of the Autoregressive Distributed Lag (ARDL) estimation technique. The study utilizes annual data for the period 1981 to 2019, which was sourced from the Statistical Bulletin of the Central Bank of Nigeria (CBN) and World Bank's World Development Index (WDI) data on Nigeria. The result confirms the existence of cointegration and that capital flight has a negative impact on the economic growth of Nigeria. The study, therefore recommends that government should create a business-friendly environment by increasing its foreign reserve and reducing external indebtedness as well as invest heavily in basic infrastructure to attract FDI.

Keywords: Capital Flight, Economic Growth, Autoregressive Distributed Lag.
JEL Classification: F32, F43, R53

1. Introduction

One of the unresolved and perturbing macroeconomic challenges facing developing economies is capital flight, whether normal or abnormal, it affects the source country's economy (Ampah, *et al*., 2018). The debate on capital flight emerges from its numerous long-term negative consequences, as these illicit financial outflows, deprived developing countries of resources that could be utilized to support vital government services (OECD, 2014). The economies of Sub-Saharan Africa (SSA) lost almost $814.2 billion between 1970 and 2010, with compound interest totalling more than $1.06 trillion, depleting vital state resources that could have been used for infrastructure and capital investment, and increasing economic inequality (Boyce and Ndikumana, 2012). Surprisingly, this amount exceeds the combined economic size of these countries as indicated by their Gross Domestic Product of $1.05 trillion, development aid of $659.5 billion and foreign direct investment which totalled $306.4 billion (Boyce and Ndikumana, 2010).

Nigeria's capital flight is reaching alarming levels, presenting a serious threat to the country's long-term prosperity. In the two decades from 1970, the scale of the

challenge was modest, standing at $7,573 million between 1972 and 1989. In contrast, between 2010 and 2018 the country lost an estimated sum of $12.84 billion (World Development Indicator, 2019). There are fears in many quarters that capital flight in Nigeria has affected the Nigerian economy by thwarting its growth potentials since it involves the exportation of savings and foreign exchange across borders hence weakening its growth potential. Capital flight additionally, worsen the macroeconomic stability of the country which manifests in the form of budget deficits, unfavourable terms of trade, exchange rate overvaluation, current account deficits and inflation rise. In addition, capital flight has adverse implications on Nigeria's balance of payment as well as exacerbates foreign finance problems (Ajayi, 1995; Ndikumana & Boyce, 2008). Consistently this leads to a decline in economic activity and lack of opportunities for gainful investment in the domestic economy. Indeed, the high levels of capital flight provide significant hurdles for mobilizing local resources to promote investment and growth in Nigeria, this means capital flight exacerbates resource constraints and impedes long-term economic development.

A considerable number of empirical studies have tried to econometrically examine the impact of capital flight on Nigerian economic growth: Bakare (2011); Saheed and Ayodeji (2012); Henry (2013); Usman and Arene (2014); Clement and Ayodele (2016); Lawal *et al.* (2017); Orimolade and Olusola (2018); Bredino, Fiderikumo and Adesuji (2018). Looking at these studies, the contribution of the present research to the literature is the use of the four components of the residual approach as a proxy of capital flight in Nigeria as well as employing the most recent cointegration technique, the Autoregressive Distributed Lag (ARDL) approach. It is to this end that the paper would analyze the impact of capital flight on economic growth in Nigeria. The findings of this study will hopefully help the appropriate authorities to take actions to reduce the incidence of capital flight in Nigeria knowing its implications on economic growth. Apart from this introduction, section 2 presents the review of the literature while the methodology and data sources are described in Section 3. The findings of the study and discussion of results are presented in section 4, and the conclusion and suggestions are presented in section 5.

2. Literature Review

Conceptual Review

Cooper and Hardt (2000) defines capital flight as the transfer of assets across the national border as a result of the holder's perception that the asset being transferred is prone to a high level of risk due to devaluation, hyperinflation, political turmoil, or expropriation if retained at home in domestic currencies. The owner of the assets in this investment unfriendly environment is seeking a place that is devoid of political and economic uncertainty. Tadesse (2014) defines capital flight as illegal outflows of financial assets which is not reflected in the record of the country of origin and which subsequently do not return. This suggests that illicit practice such as falsification of trade records constitute capital flight (trade mis-invoicing). The Morgan Guaranty Trust Company (1986) adopted a more elaborate definition where capital flight is define as the reported as well as the unreported transfer of

assets to foreign countries by the non-bank business sector and elements of the public sector. Finally, capital flight is any legal or illegal transfer of assets from a developing and capital scarce economy to a capital abundant economy in seek of privacy or asset protection and investment.

Since there is no universally agreed definition of capital flight, there are a variety of capital flight measurements in the literature. In general, the following are the approaches to the measurement of capital flight:

The Hot Money or Balance of Payments Method

This approach was first proposed by Cuddington (1986). It measures capital flight as the sum of short-term capital outflows of the non-bank private sector including documented errors and omissions i. e. statistical discrepancy in the balance of payment statistics. Where the amount accumulated in the current and capital accounts differs from the amount accumulated in the reserve asset, a negative value for net errors and omissions results. This method envisages that capital flight goes unreported, due to the illicit nature of these capital movements. The unreported capital outflows are believed to appear in net errors and omissions.

The Trade Mis-invoicing Method

Under the trade mis-invoicing approach, trade data is compared from both importing and exporting nations. Importers are assumed to be involved in capital flight when they declare higher values for imported goods compared to the reported value of similar goods by exporters (over-invoicing). When exporters report lower values for exported goods than importers report for comparable goods, they are participating in capital flight (under-invoicing). Under-invoicing of exports and over-invoicing of imports contribute to a significant amount of capital flight from African countries (Ndikumana, Boyce and Ndiaye, 2014).

The Dooley Method

According to Dooley (1987), capital flight under this method is estimated as part of an increase in external claims that provides recorded investment income, which is not reported to the domestic authorities. This method differentiates between legal and illegal capital flight, as those assets which do not generate reported income are thought to be move to circumvent existing controls.

Mirror Stock Statistics /Asset Method

Capital flight is calculated using the asset method as an increase in private citizens' cross-border bank deposits (Fedderke and Liu, 2002). The total figure is the amount of money owing to foreign banks by citizens of a country. This is because citizen's assets can be held in forms other than bank accounts, such as foreign equity holdings. This measure can be interpreted as an indicator of the least amount of assets kept abroad (Hermes, Lensink and Victor, 2002).

The Residual Method or World Bank Method

This approach was introduced in pioneering studies by the World Bank (1985) and Erbe (1985). It measures capital flight by comparing the sources of capital inflows (i.e. net increases in external debt and the net inflow of foreign investment) with the uses of these inflows (i.e., the current account deficit and additions to foreign

reserves). In principle, if the balance of payments statistics were to be used (reported by the International Monetary Fund Balance of Payments Statistics), the uses and sources of funds should be equal. This suggests that for the non-existence of capital flight, the sources must be equal to the uses of capital inflows. Capital flight occurs when the sources of capital inflows exceed the uses of those inflows. If the difference is positive, it reflects capital flight; if it is negative, it reflects capital inflows.

Consequences of Capital Flight

Capital flight may affect an economy in the following ways: First, the reduction of growth potential:- capital flight hampers domestic investment by reducing the volume of funds channelled via the domestic banking system, thereby slowing economic growth (Ndikumana, 2009). Additionally, the wealth that is being siphoned out of the country might have been used to import critical equipment and supplies for the advancement of domestic industry and the economy at large. The import restriction on growth may have been eased as a result of this (Pastor, 1990). Second, the erosion of the tax base:- capital flight decreases the effectiveness of a government to raise revenue from taxes, this arises from the fact that income and wealth generated are outside the purview of relevant authorities and hence cannot be taxed. According to Ayadi (2008), this deprived nations of revenues, capable of contributing to fiscal deficits and constraining expenditures on social welfare programs, defence, and infrastructure development. Third, capital flight deepens inequality:- it is worth emphasizing that capital flight deepens the gap between the rich and the poor since individuals who participate in capital flight are few and inevitably belong to the economic and political elites; they use their most privileged positions to unlawfully drain money overseas. The negative effects of capital flight in terms of reduced income and foreign exchange are felt differently by different classes of society, with the poor bearing the brunt of the impact most. Fourth, the negative impact on the balance of payments:- capital flight accounts for a considerable amount of a country's transaction with the rest of the world. This negatively affects the current account balance of the source country. Finally, capital flight weakens the economy by depleting valuable national resources. It widens the resource gaps faced by developing countries, perpetuating their reliance on external aid. Furthermore, capital flight reduces capital accumulation and long-term growth through widening resource gaps (Tadesse, 2014).

Theoretical Review

The Debt-Driven Thesis

This assumes that when a nation has significant foreign debt, it should expect currency rate devaluation, fiscal crises, and the crowding out of local capital and asset expropriation to pay off the loan. When the debt overhang and investment-driven theories are combined, they suggest a mutually reinforcing relationship between capital flight, growth, and foreign debt. Capital flight causes slow growth, necessitating the need to borrow to maintain growth. More borrowing or indebtedness encourages capital flight, which results in slower economic growth. (Collier *et al*, 2001).

The Tax- Depressing Thesis

This postulates that capital flight leads to potential revenue loss because wealth held abroad is outside the purview of the domestic government and cannot, therefore be taxed. High anticipated tax rates may reduce net expected returns on domestic investment, while tax rate volatility may increase investment risk, ensuing lower risk-adjusted returns on domestic investment (Ndikumana and Boyce, 2002). The fall in government revenue complicated the task of politico-economic engineering to promote growth and development. As a result, the government's ability to service its debt has been reduced, hence, the debt burden rise which constrains economic growth and development. Thus, a direct result of capital flight is the reduction in revenue-generating potential of the government.

The Austerity Thesis

This focuses on the poor in the severely indebted situation due to capital flight. They suffer more because the capital that could otherwise have been used for the provision of life-sustaining services is illegally taken out of the country (Kapoor, 2007). Poverty in developing countries reduces them to a state of relative deprivation while perpetrating international inequality and dependency and widening the gap between the rich and poor countries. Furthermore, the tax that the poor may pay is small, which again constrains the ability of the government to muster enough resources to promote growth and development with poverty alleviation. Thus, a vicious circle of external debt, capital flight, poor growth, and external debt is created.

Empirical Review

Forgha (2008) employed the Engle Granger Co-integration technique on a study of the determinants, measurements and impact of capital flight on real economic growth in Cameroon from 1970 to 2005. The study found that capital flight in Cameroon within the study period is driven by political instability, external debt servicing, real GDP, interest rate, inflation, fiscal deficit, and exchange rate. Capital flight also reported a negative impact on economic growth. The study recommended the need for quality governance, fiscal discipline, tax and tariff adjustments. Bakare (2011) investigated the determinants and roles of capital flight on the Nigerian economy's growth process from 1988 to 2010, using a Vector Autoregressive Model Approach. The study found a negative association between capital flight and economic growth, indicating that economic growth in Nigeria has the potential to reduce capital flight. The study concluded that governments should promote growth and reverse the negative distributional effects of capital flight. From 1981 to 2007, Saheed and Ayodeji (2012) studied the effects of capital flight on Nigeria's exchange rate and economic development. The study employed OLS and found a positive and statistically significant influence of capital flight on the exchange rate and economic growth in Nigeria. Based on the findings, the study suggested the need for a proper check on the menace of capital flight and further training to be given to Nigerian customs to improve their effectiveness in tackling cases of misinvoices in imports and exports. Olugbenga and Alamu (2013) employed the Johansen cointegration test to examine the impacts of capital flight on Nigeria's economic growth spanning the period of 1981 to 2010. The study

revealed that capital flight has a detrimental influence on economic growth in the short run, but the contrary is true in the long run. The research concluded that an appropriate business climate is required to attract foreign investors to Nigeria and that capital outflows that finance the importation of capital goods required for development should be encouraged owing to their long-term benefits. Henry (2013) studied the determinants, measurement and impact of capital flight on economic growth in Nigeria from 1980 to 2011. Ordinary Least Squares (OLS) was utilized and the study found that capital flight from the Nigerian Niger Delta region is caused by political instability, high fiscal deficit, high-interest rate, high external debt, macroeconomic instability, inflation, public policy uncertainty, rate of return differentials, exchange rate overvaluation and dwindling external reserves. In addition, there is a negative relationship between capital flight and economic growth. The study suggested the need for good governance, implementation of fiscal discipline, attitudinal change in the management of the national economy among others.

In a time-series study Usman and Arene (2014), empirically studied the effects of capital flight and its macroeconomic determinants on agricultural growth in Nigeria between 1970 and 2013. The study employed Ordinary Least Squares (OLS) and found that there is a negative and insignificant relationship between total capital flight and agricultural growth. In addition, total capital flight, macroeconomic instability, political instability, interest rate differential and variability in consumer price index show a negative relationship with agricultural growth. The study concluded by recommending that Nigeria should judiciously use the income accruing from loans and Foreign Direct Investment (FDI) if Agricultural growth is to be enhanced. Olawale and Ifedayo (2015) examined the impacts of capital flight on economic growth in Nigeria between the periods 1980 to 2012. Cointegration and Error Correction Mechanism (ECM) were employed and the study found that capital flight, foreign reserve, external debt, foreign direct investment and current account balance co-integrate with Gross Domestic Product (GDP) in Nigeria within the year under study and that capital flight had a negative impact on the economy. The study recommended that government should create an enabling environment for profitable investment and offer foreign investors attractive incentives that will reduce the occurrence of capital flight from Nigeria. Obidike *et al*. (2015) studied the impact of capital flight on the economic development of Nigeria from 1980 to 2011. The Autoregressive Distributed Lagged model (ARDL) was employed and the result showed that capital flight has a negative and significant impact on economic development. Based on these it was recommended that government should take concerted steps to improve the security of life and property in the country and public resource managers should sincerely partner with anti-graft agencies to ensure that all the channels through which public office holders launder money abroad are stopped. Clement and Ayodele (2016) examined empirically the impact of capital flight on the Nigerian economy between 1980 and 2014. The study found that the variables have a significant effect in the positive direction. The study recommended the need for government to create an enabling environment for investments in Nigeria, intensify effort in the recovery of looted funds in foreign

accounts and monetary authorities should ensure capacity building for local investments.

Lawal *et al.* (2017) applied the Autoregressive Distributed Lag (ARDL) model to investigate the impact of capital flight and its determinants on the Nigerian economy from 1981 to 2015. The study revealed the existence of a long-run relationship among the variables studied and capital flight has a negative impact on the economic growth of Nigeria. The study suggested the need for government to implement policies that will promote domestic investment and discourage capital flight from Nigeria. Igwemma *et. al*., (2018) used an Autoregressive Distributed Lag (ARDL) approach to investigate the impact of capital flight on the Nigerian economy from 1986 to 2016. According to the findings, capital flight and economic growth have a negative and significant relationship, domestic investment and interest rate differential both have positive relationships with real GDP while political instability, looted funds, expenses on foreign education and medical services were found to have a positive and significant impact on capital flight. To deter capital flight, the study recommended that education and health infrastructures should be appropriately supported along with governance and prosecution of corrupt officials to discourage capital flight.

Orimolade and Olusola (2018) investigated the impact of capital flight on the growth of the Nigerian economy. The Autoregressive Distributed Lag approach was employed to analyze both short and long-run relationships between the variables. The study found that there is a long run negative relationship between GDP and all the capital flight variables in the study. The study recommended a favourable economic policy to take care of inflation, poor and inadequate infrastructural facilities, and high rate of taxation among others to discourage capital flight from the Nigerian economy. Bredino, Fiderikumo and Adesuji (2018) analyzed the impact of capital flight on economic growth in Nigeria from 1980 to 2012. The study revealed that capital flight has an adverse impact on the GDP, while exchange rate impacts positively on the GDP. The study suggested that the government should develop appropriate mechanisms to monitor the amount of capital that is flown out of the nation, as well as place controls on all levels of the government's external borrowing tendencies.

3. Methodology

The data for the study came from a secondary source and specifically time series data spanning the period of 1981 to 2019. The data was sourced from Statistical Bulletin of the Central Bank of Nigeria (CBN) and World Bank's World Development Index (WDI) data on Nigeria. To study the impact of capital flight on economic growth in Nigeria, this study adopted the residual approach to capital flight measurement as stipulated by World Bank (1985) and Erbe (1985).

$$KF_{it} = \Delta\mathrm{DEBT}_{it} + \mathrm{FDI}_{it} - (\mathrm{CA}_{it} + \Delta\mathrm{RES}_{it}) \quad \ldots\ldots 1$$

This is because the measurement of capital flight using this approach accommodates some important variables which determine the economic growth of Nigeria. These variables include external debt, foreign reserve, current account

balance and foreign direct investment. The functional form of the research model is presented as:

GDP = f (EXD, FDI, CAB, FOREV) …… 2

Where GDP is the gross domestic product, which is the dependent variable, EXD is the external debt proxied by the stock of gross external debt owed to non-residents, FDI is the foreign direct investment proxied by net inflows of foreign investment, CAB is the current account balance proxied by the sum of net exports of goods and services, net primary income and net secondary income. Lastly, FOREV is the foreign reserve proxied by the level of Nigeria's real foreign exchange reserves. For empirical analysis, equation (2) is restated as thus:

$$\text{GDP} = \beta_0 + \beta_1 \text{EXD} + \beta_2 \text{FDI} + \beta_3 \text{CAB} + \beta_4 \text{FOREV} + \mu_t \text{ ……... 3}$$

The semi log-linear specification of equation (3) is expressed as:

$$\text{LGDP} = \beta_0 + \beta_1 \text{LEXD} + \beta_2 \text{LFDI} + \beta_3 \text{LCAB} + \beta_4 \text{LFOREV} + \mu_t \text{ ……..... 4}$$

The apriori expectations of the model are that: LEXD<0, LFDI>0, LCAB<0, LFOREV>0

An ARDL representation of equation (4) above is specified in equation (5) below:

$$\Delta LGDP_t = \alpha + \sum_{i=1}^{q} \beta_{i,1} \Delta LGDP_{t-i} + \sum_{i=0}^{q} \beta_{i,2} \Delta LEXD_{t-i} + \sum_{i=0}^{q} \beta_{i,3} \Delta LFDI_{t-i} + \sum_{i=0}^{q} \beta_{i,4} \Delta LCAB_{t-i} + \sum_{i=0}^{q} \beta_{i,5} \Delta LFOREV_{t-i} + GDP_1 LGDP_{t-1} + GDP_2 LEXD_{t-1} + GDP_3 LFDI_{t-1} + GDP_4 LCAB_{t-1} + FDI_5 LFOREV_{t-1} + \mu_t \text{ ……. 5}$$

The ECM representation takes the following form:

$$\Delta LGDP_t = \alpha + \sum_{i=1}^{q} \beta_{i,1} \Delta LGDP_{t-i} + \sum_{i=0}^{q} \beta_{i,2} \Delta LEXD_{t-i} + \sum_{i=0}^{q} \beta_{i,3} \Delta LFDI_{t-i} + \sum_{i=0}^{q} \beta_{i,4} \Delta LCAB_{t-i} + \sum_{i=0}^{q} \beta_{i,5} \Delta LFOREV_{t-i} + ECM_{t-1} \text{ …….. 6}$$

Where ECM is the error correction version of the ARDL model and all other variables are as explained under equation (2).

This study employs the Autoregressive distributed lag estimation technique (ARDL) to examine the impact of capital flight on economic growth in Nigeria. The ARDL procedure can be used when the variables are integrated of order zero or one unlike in the case of Engel Granger and Johansen cointegration approaches. The ARDL procedure is also quite efficient in small sample data, as is the case in this study (Giles, 2013). There are several stages to the ARDL cointegration technique. The stationary properties of time series variables were investigated in the first step by using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. The second stage is determining whether or not there is a long-run relationship between the dependent and independent variables. The last stage of an ARDL bound approach is to estimate an error correction model associated with the long-run estimates to derive the short-run dynamic parameters.

4. Results

Descriptive Statistics

The descriptive statistics as derived through E-Views 9.0 shows the characteristics of the data and are presented in Table 1. It shows that GDP is on average 8.620157 with a standard deviation of 2.366814. The highest value is 11.87903 while the least value is 4.975569. The distribution of GDP is negatively skewed, platykurtic and normal. The result also shows that on average, FDI is 21.06754 with fluctuations of 1.145217. The highest value realized is 22.90267 while the least value is 19.05813. The distribution of FDI is normal, positively skewed and platykurtic. The average rate of CAB has been 15.84817 with a fluctuation of 10.16033. The highest rate is 24.32137 and the least is 13.94090. The distribution of this variable is negatively skewed, platykurtic and not normally distributed. The variable EXD is negatively skewed and the distribution is leptokurtic, it is on average 17.48253 with a standard deviation of 8.347644. The highest value is 22.89766 while the least value is 13.27411. The distribution of EXD is not normally distributed. Lastly, FOREV is on average 22.86237 with deviations of 1.400976. The least value of FOREV reported is 20.65390 while the highest value is reported at 24.70480. The distribution of FOREV is not normally distributed, negatively skewed and platykurtic.

Table 1: Summary Statistic of Variables

	LGDP	LEXD	LFDI	LCAB	LFOREV
Mean	8.6201	17.482	21.067	15.848	22.862
Median	8.8389	21.407	21.019	20.907	22.747
Maximum	11.879	22.897	22.902	24.321	24.704
Minimum	4.9755	13.274	19.058	13.940	20.653
Std. Dev.	2.3668	8.3476	1.1452	10.160	1.4009
Skewness	-0.2109	-1.6130	0.0364	-0.9072	-0.0701
Kurtosis	1.6090	3.6920	1.8108	1.9066	1.4578
Jarque-Bera	3.4334	17.691	2.3063	7.2925	3.8966
Probability	0.1796	0.0001	0.3156	0.0260	0.1425
Sum	336.18	681.81	821.63	618.07	891.63
Sum Sq.Dev.	212.86	2647.9	49.837	3922.8	74.583
Observations	39	39	39	39	39

Source: Authors' computation

Stationarity Test

To determine whether there is a presence of unit root or the series are stationary, we investigated the time series characteristics of the variables (LGDP, LEXD, LFDI, LCAB, LFOREV) using Augmented Dickey-Fuller (ADF) and Philips Peron (P-P) unit root tests. The result of the Augmented Dickey-Fuller test as presented in table 2 shows that LFOREV, LCAB, LFDI and LGDP are stationary at first difference while LEXD is stationary at level.

Similarly, from the Philips Peron test, LFOREV, LFDI and LGDP are stationary after the first difference whereas LCAB and LEXD are stationary at level. Based on this result, it is obvious that the variables are integrated of the orders 1(0) and 1(1). Thus, the Autoregressive Distributed Lag (ARDL) Bounds test will be employed to

investigate whether there is a long-run relationship among the variables incorporated in our model.

Table 2: Summary of Unit Roots Test Results

		ADF	PP
LGDP	Level	-1.0474	-0.7952
	1st	-3.2085**	-3.1225**
LEXD	Level	-5.2575***	-5.2231***
	1st	-6.2513***	-18.280***
LFDI	Level	-1.9505	-1.6583
	1st	-9.8592***	-9.7738***
LCAB	Level	-1.3114	-3.8152***
	1st	-3.8577***	-8.0547***
LFOREV	Level	-0.7393	-0.6040
	1st	-5.5604***	-6.9705***

*Note: ***, ** and * indicate significant at 1%, 5% and 10% respectively.*
Source: Authors' Computation

Bound Test for Cointegration

The results of the bounds testing approach for cointegration is presented in table 3. It is seen that the calculated F statistics of (5.392708) is greater than the upper and lower critical values of 4.37 and 3.29 at a 1 percent level of significance. Indicating that the null hypothesis of no cointegration cannot be accepted, meaning that there is a cointegration among the variables.

Table 3: ARDL Bounds Test

F-Statistics	5.392708	4
	Critical Value Bounds	
Significance	I0 Bound	I1 Bound
10%	2.2	3.09
5%	2.56	3.49
2.50%	2.88	3.87
1%	3.29	4.37

Source: Authors' computation

Result of the Estimated Long-Run Coefficients of the ARDL

This section contains the results of the long-run relationship among the variables. The results are summarized and presented in Table 4.

Table 4: Dependent Variable: LGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCAB	0.0485	0.0398	1.2186	0.2328
LFOREV	3.3032	0.6920	4.7733	0.0000
LEXD	-0.0732	0.0426	-1.7154	0.0969
LFDI	1.5537	0.7406	2.0977	0.0448
C	-38.119	6.0118	-6.3406	0.0000

R^2 = 0.99; AIC = -2.012, SBC = 1.624, HQC = -1.874; DW = 1.871, ADJ. R^2 = 0.99; F- Stats = 3893.322, P (F-Stats) =0.000000.

Source: Authors' Computation

The result as indicated in table 4 shows that the coefficient of determination (R^2) of the model is 0.99, indicating that approximately 99 percent of the variations in

economic growth is explain by the explanatory variables. The F statistic value of the long-run model is also significant and implies that all the explanatory variables included in the model are jointly significant. In the result, there exist a positive and significant relationship between the foreign reserve and economic growth in Nigeria in the long run. One percent increase in foreign reserve leads to about 3.303200 percent increases in economic growth in Nigeria. The implication of this finding is that increase in foreign reserve boosts domestic investors' confidence in the domestic economy, hence discouraging the outflow of capital and improving the potential of economic growth. This result is consistent with the work of Lawal *et al.*, (2017).

In addition, external debt has a negative impact on economic growth in Nigeria in the long run. One percent increase in external debt leads to about 0.073228 percent decrease in GDP. This finding implies that high external debt has the capacity of reducing national output thus providing unfavourable investment climate which supports capital flight. The finding is similar to the work of Mweni *et al*., (2016) and Ngugi *et al*., (2016).

In the result, there exists an insignificant positive relationship between current account balance and economic growth in Nigeria. One percent increase in current account balance leads to about 0.048512 percent increases in Gross Domestic Product in Nigeria.

Lastly, there exists a positive and significant relationship between foreign direct investment and economic growth in Nigeria in the long run. One percent increase in foreign direct investment leads to about 1.553727 percent increases in economic growth in Nigeria. This finding implies that foreign direct investment has the potential of improving economic growth and reducing capital flight in Nigeria. This is because an increase in FDI reflects a general improvement in the investment climate hence improving national productivity and dissuading capital outflow. The result conforms to the findings of Lawal *et al.*, (2017) and Kolapo & Ojo (2012).

Result of the Estimated Short-Run Coefficients

The result of the short-run analysis of the model from table 5 reveals the value of the ECM coefficient which is of most importance in the table is -0.531179. This implies that, in case of distortion in the economy, equilibrium can be re-established by approximately 53% annually. The negative value of the ECM coefficient confirms that there is disequilibrium in the short run which the set of variables in the model is trying to correct in the long run.

Table 5: Estimated Short-Run Coefficients of the ARDL Model

	Dependent Variable: LGD			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LCAB)	0.00013	0.00131	0.10270	0.9189
D(LFOREV)	0.09999	0.03107	3.21754	0.0032
D(LEXD)	-0.00380	0.00126	-3.00664	0.0054
D(LFDI)	0.04395	0.01823	2.41018	0.0225
CointEq(-1)	-0.53117	0.00333	15.93709	0.0000

Source: Authors' Computation

The results indicate that all the variables significantly affect economic growth in the short run except current account balance. The only difference between the coefficients of these variables in the short and long run is the magnitude but the signs are the same.

Post Estimation Diagnostics Test

To ensure the adequacy of the model, as well as the reliability of the results, a series of post-estimation diagnostic tests of serial correlation (autocorrelation), normality and heteroskedasticity were carried out on the selected ARDL model. For the serial correlation test, the Breusch-Godfrey Langrage Multiplier LM test was adopted to test the null hypothesis of no serial correlation. The result shows that the F statistics value of 0.093633 (corresponding to a p-value of 0.9109) is insignificant, thus confirming the presence of no serial correlation.

Table 6: Results of the Diagnostics Tests

Normally test			
JarqueBera	0.674152	Prob.	0.7138
Breusch-Godfrey Serial Correlation LM Test			
F-statistics	0.093633	Prob. F(2,27)	0.9109
Breusch-Pagan-Godfrey Heteroscedasticity Test			
F-statistic	2.059671	Prob. F(8,29)	0.7141

Source: Authors' Computation

For heteroskedasticity, the Breach-Pegan-Godfrey test was carried out to test the null hypothesis of no heteroskedasticity. The outcome of the test too did not show any evidence of heteroskedasticity going by the insignificant F statistics value of 2.059671 (corresponding to the p-value of 0.7141). Finally, the test of normality of residual was carried out using the popular Jarque-bera statistics. The normality test testified that the model is normally distributed. This has resulted from the fact that the probability value of the Jarque-Bera is not statistically significant even at 10% level.

To determine the stability of the model and the estimated parameters, the study applies the cumulative sum of recursive residuals (CUSUM) and cumulative sum of recursive residuals of squares (CUSUMSQ) which is shown in figure 1 and 2 respectively. The result of CUSUM depicts that the model and the estimated parameters are stable, the blue line veers within the two red lines indicating 5% level of significance, although there was divergence away in 2011 but was restored in 2019. Closer scrutiny of the CUSUMSQ also shows that the model and the estimated parameters are stable given that the graph moves within the 0.05 critical values.

Figure 1

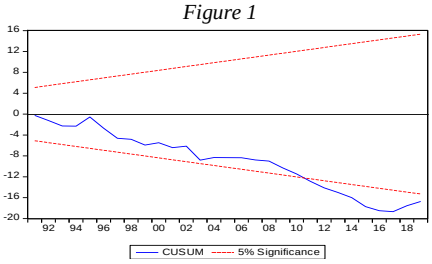
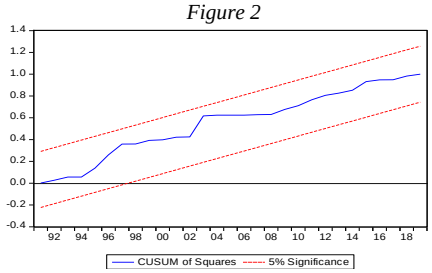


Figure 2



5. Conclusion and Reccomendations

From the study, it is very evident that capital flight components such as external debt, foreign direct investment, and foreign reserve, as posited by the residual method, have a major influence on economic growth in Nigeria. As a result, it is concluded that capital flight has a considerable influence on economic growth and that the variables of the study are cointegrated in the long run.

Based on this, the study recommends that the government of Nigeria should provide a business-friendly environment continuously to improve the economy by increasing its foreign reserve and reducing external indebtedness, this is crucial to the maintenance of macroeconomic stability as well as boost the confidence of domestic investors in the economy. Lastly, to attract private foreign resources in the form of Foreign Direct Investment into the nation, it is also necessary to restore and strengthen existing and decayed critical infrastructure, such as power, roads, and transportation.

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