



## Research Article

# The Effect of Foreign Capital Inflows on Economic Growth in Nigeria

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**Abstract:** Foreign capital inflows are major forms of resource transfer from the developed to the developing countries where they are usually found to be more productive and the result can be positive or negative. Hence, the work set out to empirically investigate the effect of foreign capital inflows and some selected macroeconomic variables on economic growth in Nigeria. The study applied the autoregressive distributed lag (ARDL) model on time series data for the period, 1981-2020. The findings from the paper indicate that foreign capital inflows: FDI, Gross fixed capital formation and personal remittances have significant impact on real gross domestic product in Nigeria. Consequently, the study recommends that government should continue to fine tune bilateral trade and investment agreements with other nations of the world.

**Keywords:** foreign capital inflows, personal remittances, foreign direct investment, Nigeria

**JEL Code:** E2, E4, E22, O11

## 1. Introduction

Foreign capital inflows are remittances from foreign nations transferred to developing countries majorly by members of that country living abroad Githaiga (2020). Foreign capital inflows are major forms of resource transfer from the developed to the developing countries where they are usually found to be more productive (Williams, 2016; Sobiech, 2019; ERP, 2006). This is seen as a way of paying back to the country as a result of its human capital lost to other countries (Randazzo & Piracha, 2019; Williams, 2018; Inoue & Hamori, 2016). An exceptional increase in capital inflows has been recorded in the past three decades from \$68.6 billion in 1990 to \$689 billion in 2018, and about \$529 billion of this amount was sent to low and middle income countries (World Bank, 2019). Studies have found that foreign capital inflows to developing countries is about 1.9% of the country's Gross Domestic Product (GDP) (Meyer & Shera, 2017; Escribà-Folch et al., 2018). These inflows seem to have tremendous impact on the growth of developing countries whose financial and capital resources are mostly deficient (Ekwe & Inyama, 2014).

The need for capital inflows to countries with low capital accumulation can be traced back to the study by Chenery and Strout in 1966 using dual gap models developed in response to the need to fill the savings and foreign exchange gap. These foreign capitals complement domestically sourced capitals as those economies depended so much on foreign

source for their economic growth (Adeola, 2017; Nwosa & Amassoma, 2014). In Nigeria, foreign capital inflows have assisted in financing capital accumulation (Umoh et al., 2012) and the balance of payments process yet, the effect of inflow of external capital into developing countries is still not very clearly understood (Kose et al., 2006). This inflow of foreign capital can be as foreign portfolio investment, Foreign Direct Investment (FDI), (or foreign aids and grants), foreign remittances, Official Development Assistance (ODA), and foreign loans (Adekunle & Sulaimon, 2018). These and other macroeconomic variables have different levels of impact in the economy. The inflow of foreign capital helps essentially in facilitating growth particularly in countries that attracted them (Akinlo, 2004; Durham, 2004; Agbloyor et al., 2014). Foreign capital inflows (FCIs) are key sources of fund, up-to-date technology and innovations from industrialized to developing countries and this helps to quicken the rate of economic development of such countries (Sinha et al., 2018; Azam et al., 2016; Fambon, 2013).

The desirability of foreign capital inflow has generated a lot of argument as to whether or not; the effect on a country's is negative or positive. Several studies in Nigeria (Ajide, 2014; Akinlo, 2004; Baghebo & Apere, 2014; Umo et al., 2012; Jibir & Abdu, 2017; Saibu & Keke, 2014; Shen, 2010; among others) have been carried out to investigate this matter however, most of them focused on particular types of inflow of foreign capital which include foreign direct investment or foreign portfolio investment. The basic approach in the literature has been the use of case studies to demonstrate how these capital inflows have influenced growth and development in some countries (Obiechina & Ukeje, 2013; Jibir & Abdu, 2017; Ugwegbe et al., 2016) and a panel study as in Adeleke et al. (2014) and Shen (2010). Many theoretical and empirical studies in many countries have observed a direct relationship existing between FCIs and economic growth (Agbloyor et al., 2014; Obiechina & Ukeje, 2013; Ajide, 2014). Umo et al. (2012), some other studies argue that the relationship differ from country to country (De Mello, 1999; Lipsey, 2000) and other studies opine that the relationship could also depend on the composition of FCI applied (Orji et al., 2014; Fambon, 2013).

Extant literatures explored on the subject did not really incorporate various forms of foreign capital inflows to determine their effect on economic growth in Nigeria. This study therefore, investigates the effect of foreign capital inflows and some selected macroeconomic variables (official development assistance, foreign direct investment, external debt, exchange rate, money supply, interest rate and personal remittances) on economic growth in Nigeria.

## 2. Review of related literature

In most developing economies, the need for investment exceeds the amount of savings in the economy, hence the need for foreign capital. A growing economy like Nigeria requires dogged and enormous expenditures on investment that would absorb dire need for foreign capital inflow (Adegboye et al., 2014). Some reforms that have evolved in some developing nations, Nigeria inclusive implies that FCIs are needed for the economy to grow and develop (Ekwe & Inyama, 2014). There is a growing concern and controversy concerning the benefits of FCIs into the economy. The initial concern was raised by Keynes Maynard in 1970s and 1980s but another concern has also been raised by a study- Fisher, Obstfeld, Rogoff and Summers in 2000. They opine that FCIs help in redistribution of resources to low saving economies where it would have a better productive use thereby increasing the rate of economic growth even though large capital inflows have been found to trigger the rate of inflation especially during fixed exchange regime (Kaminsky, 2005). Nigeria joined other developing countries in dismantling restrictions and other measures against the inflow of capital into the country.

Nwosa et al. (2020) studied the relationship between volatility in capital inflows and economic growth in Nigeria using data from 1986 to 2018. They applied Auto-Regressive Distributed Lag (ARDL) model and found that instability in capital inflow has a negative impact on economic growth. It also observed that instability in short term capital inflows has a disaggregated negative impact on economic growth through foreign portfolio investment and other investment flows while in the long run it encouraged growth through foreign direct investment

A study by Kyriakos (2019) on volatility of financial flows and economic growth analysed how policy affected inflow of capital and the effect it had on economic growth using data for seventy-eight countries. The study found that policy regulations encouraged economic growth by reducing the adverse effect of unstable inflows thereby encouraging long term economic growth. Ikpesu (2019) studied the impact of capital inflows and investment on economic growth in Nigeria applying ordinary least squares method. It found both variables-foreign capital inflows and domestic investment to have impacted positively and significantly in Nigeria. Akinmulegun (2019) also studied the association between

portfolio investment and capital market development in Nigeria using Vector Error Correction Mechanism (VECM) estimation and granger Causality methods. The study found no causation between capital market development and foreign portfolio investment in Nigeria though the VEC estimate showed that Market Capitalization impacted negatively and significantly on foreign portfolio investment in Nigeria. Adekunle and Suliamon (2018) revisited the study on the impact of foreign capital flows and economic growth in Nigeria for the period 1986 to 2015 using ARDL estimation techniques. This study found no long run relationship existing between foreign capital flows and economic growth but found net FDI inflows to positively impact on economic growth as net foreign remittance and net portfolio flows negatively impacted on economic growth significantly.

Some studies on foreign capital inflow disaggregated it into components. A study by Oyinlola (1995) applying Chenery and Stout's two gap model found FDI to be negatively related to economic development in Nigeria. Another study by Adelegan (2000) applying SURE model found FDI to be negatively related to gross domestic investment. Okodua (2009) applied Cointegration and error correction models in a study to determine the connection between FDI and economic growth in Nigeria and found a unidirectional causality running from FDI to economic growth. A study by Kolawole (2013) in Nigeria using data from 1980-2011 showed that foreign direct investment (FDI) and official development assistance (ODA) are inversely related to real growth implying that FDI and ODA impacts negatively on real GDP in Nigeria. Akinlo (2004) also found a non-significant impact of foreign capital inflows on the Nigerian economy. Okafor et al. (2016); Oyatoye et al. (2011); Nkoro and Furo (2012); Fasanya and Onakoya (2012) found that foreign capital inflow positively impacts on economic growth in Nigeria using Toda Yamamoto test on data between 1981-2014. Adegboye et al. (2014) in a study on the relationship between economic growth, FDI, external debts and capital inflows in Nigeria found that external debt impacts more than FDI in Nigerian economy. Adelegan (2000) using a two-gap and a SURE model respectively observed that FDI negatively impacts on the growth of Nigerian economy. Bashir (2013) applying Two-Gap model between the period 1980 and 2011 found no granger causality between FDI and economic growth in Nigeria while Nkoro and Uko (2013) found a causality from FDI-foreign direct investment (FDI) and foreign aid to real GDP growth in Nigeria though FDI was found not to significantly impact on growth of Nigerian economy. Olufemi and Keke (2014) applying cointegration and error correction models in Nigeria found that some of the capital inflows were fruitless even when they had the probability of being productive but the country's macroeconomic and political policies affected the performance of the inflows. A study by Orji et al. (2014) applied SURE model in order to ascertain the effect of disaggregated components of FDI on economic growth of the West African Monetary Zone (WAMZ) (Ghana, Sierra Leone, Nigeria, and Gambia) from 1981-2010. The study found FDI to have a more positive effect on the growth of output in Nigeria and Gambia than in the other countries. On the contrary, Umoh et al. (2012) found a positive relationship between FDI and economic growth in Nigeria.

The relationship between FDI and economic growth has also been studied in other countries. Chakraborty and Nunnenkamp (2006), applying granger causality and panel Cointegration found out that the impact of FDI on growth in Indian economy differ from sector to sector. Also, Mutascu & Tiwari (2011) studied how FDI interacts with economic growth of Asian countries applying panel data for 23 countries and found that FDI and export promotes growth. Hameed et al. (2008) in a study in Pakistan on the relationship between external debt and economic growth using cointegration and ECM and observed that debt servicing impacts negatively on the economy, hence an inverse relationship exists between them while Ali (2014) using Johansen cointegration and granger causality in a study of FDI and economic growth found a negative relationship.

Fambon (2013) applied the autoregressive distributive lag approach in a study in Cameroon using data between 1980 and 2008 and observed that capital inflow in the form of foreign direct investment and foreign aid impacted positively on the economy though in the short run. Mosley (1980) and Razzaque and Ahmed (2000) found a negative relationship between foreign aid and economic growth. However, Burnside and Dollar (2000) and Hansen and Tarp (2001) found a positive impact of foreign aid on growth but this was dependent on favourable policies and quality capital. Andaleeb and Idrees (2010) applying least squares Dummy variables (LSDV) on South Asian economies also found foreign aid to impact positively on growth. Some studies opine that cost is involved and that in non-industrial economies, reduction in financial aids stimulates more growth (Prasad et al., 2003). Gong & Zou (2000) argue that continuous increase in foreign aids leads to a neglect in capital formation, hence its reduction. It also stimulates domestic consumption which will lead to increase in external borrowing.

According to some studies (Lartey, 2008; Ghosh, 2010), appreciation of real exchange rate as a result of foreign

inflow of capital leads to a loss in competition, increases the deficit in current account and increases the tendency of a financial crisis thereby creating problems for macroeconomic stability (De Paula et al., 2012; Rashid & Husain, 2010).

These studies (Bulir & Lane, 2002; Prati et al., 2003; Lartey, 2007; Elbadawi et al., 2008) opine that official flows are usually linked with appreciation of real exchange rate while other studies (Hussain et al., 2009; Mongardini & Rayner, 2009; Combes & Kinda, 2011) did not find such. The effect of remittances on real exchange rate is mixed (Chami et al., 2008). According to Montiel (2006), and Saadi-Sedik and Petri (2006), increase in remittances leads to the appreciation of real exchange rate while studies by Izquierdo and Montiel (2006) and Rajan and Subramanian (2005), were inconclusive on the issue. Some authors have studied the impact of exchange rate instability on foreign capital inflows in Nigeria, especially FDI. A study by Osinubi and Amaghionyeodiwe (2009) applying OLS and error correction model between 1970 and 2004 found a direct relationship between FDI and exchange rate. Ogunleye (2008) found exchange rate instability to have a negative impact on FDI inflows as well as excessive inflow of FDI worsening exchange rate movement in Nigeria and South Africa.

Ezeabasili et al. (2011) in a study carried out in Nigeria with data between 1975 and 2006 found that external debt is negatively related to economic growth. Another study by Ugwegbe et al. (2016), applied OLS to examine the effect of foreign aid, external debt, foreign reserve and exchange rate on Gross domestic product in Nigeria for the period (1980-2013). Findings indicate that external debt has an insignificant positive influence on growth, whereas, foreign aids, in the short run, have a significant positive effect on growth. in Nigeria on interest rate, money supply, domestic investment, real gross domestic product and exchange rate using time series data for the period, 1981-2020.

### 3. Data and methodology

In order to empirically examine the effect of foreign capital inflows on some selected macroeconomic variables in Nigeria, and to establish the nature and strength of such effect, this study adopted the standard procedure of time series analysis. We adopted the Autoregressive distributed lag model (ARDL) similar to that of (Obodoechi & Akor, 2018), with a study period from 1980 to 2020. The main reason for this lies in the flexibility of this model to handle small sample data and its usefulness when variables are integrated of order I(0) and I(1) but not I(2). All the data in this paper were sourced from the World Development Indicator of 2021 and the CBN statistical bulletin (2021).

The ARDL model is specified below as thus;

The regression model will be specified as;

$$\begin{aligned} \Delta RGDP_t = & \alpha_0 + \sum_{i=1}^n \beta_1 \Delta RGDP_{t-i} + \sum_{i=1}^n \beta_2 \Delta EXPR_{t-i} - \sum_{i=1}^n \beta_3 \Delta FDI_{t-i} + \sum_{i=1}^n \beta_4 \Delta ODA_{t-i} \\ & + \sum_{i=1}^n \beta_5 \Delta EXD_{t-i} + \sum_{i=1}^n \beta_6 \Delta PREM_{t-i} + \sum_{i=1}^n \beta_7 \Delta GFCF_{t-i} + \gamma_1 RGDP_{t-1} + \gamma_2 EXPR_{t-1} \\ & + \gamma_3 FDI_{t-1} + \gamma_4 ODA_{t-1} + \gamma_5 EXD_{t-1} + \gamma_6 PREM_{t-1} + \gamma_7 GFCF_{t-1} + \varepsilon_t \end{aligned}$$

Where,  $\Delta$  is the first difference operator, and  $\alpha_0$  is the drift component. The expressions with summation sign ( $\beta_1 - \beta_7$ ) represents the short-run dynamics of the model, while the coefficients ( $\gamma_1 - \gamma_7$ ) represents long-run relationship and  $\varepsilon_t$  is the serially uncorrelated disturbance with zero mean and constant variance.

The existence of a long-run relationship among the variables in the system was tested using the bound tests approach. This test is based on Wald or F-statistic and follows a non-standard distribution. If the calculated F-statistics is below the lower bound critical value, the null hypothesis of no cointegration is accepted. If it is greater than the appropriate upper bound critical values, the null hypothesis is rejected implying cointegration. However, if it lies within the lower and upper bounds, the result becomes inconclusive. Table 1 shows the description of the various variables included in the model and the sources of where the data was employed from.

**Table 1.** Description of variables

Variable	Description	Data Source
RGDP	Real gross domestic product	World Development Indicator (2021)
EXPR	Export revenue/foreign earnings	Central Bank Statistical Bulletin (2021)
FDI	Foreign direct investment	World Development Indicator (2021)
ODA	Aid/official development assistance	World Development Indicator (2021)
EXD	External loan/debt	World Development Indicator (2021)
PREM	Personal remittances	World Development Indicator (2021)
EXCH	Exchange rate	World Development Indicator (2021)
INT	Interest rate	World Development Indicator (2021)
MS	Money Supply	World Development Indicator (2021)
GFCF	Domestic investment in Nigeria proxied by Gross Fixed Capital Formation	World Development Indicator (2021)

## 4. Results and discussions

**Table 2.** Descriptive statistics results

Variable	Obs	Mean	Std. dev.	Min	max
Ex_Rate	40	104.14	108.62	0.617	382.61
Exp_Rev	40	4,954.4	5,485.8	7.502	15,262
Ext_Debt	40	2.60E+10	8.31E+09	9.62E+09	4.02E+10
FDI	40	2.7503	2.2279	0.6521	10.832
GFCF	40	12.93	5.792	5.467	34.020
Int_Rate	40	17.71	4.712	3.916	31.65
M2	40	5,729.9	7,693.05	14.47	22,363.4
ODA	40	9.95	21.13	0.1888	104.32
PREM	40	3.408	3.547	0.0104	13.042
RGDP	40	35,374.4	20,408.2	13,779.2	69,023.7

Table 2 represents the descriptive analysis of the variables employed in the model. All variables has 40 observations, with RGDP having a mean value of 35,374.4 in a span of 40 years and a standard deviation of 20,408.2.

The maximum value of 69,023 represents the highest value represented over the span of the period. Foreign direct investment has a mean value of 2.7503 and a standard deviation of 2.2279, representing the average of FDI inflow into the country and the level of deviation of the variable respectively.

Table 3 shows pre-estimation test result for stationarity of the variables employed in the model using Augmented Dickey Fuller unit root test. The result shows that GCF, FDI, MS and ODA are stationary at levels, while the rest of the variables were stationary at first difference (integrated of order one). The decision rule for no unit root is that the ADF test statistic must be greater than the critical value (at the 5% level) for the series to be stationary.

**Table 3.** ADF unit root test results

Variables	ADF test statistic	5% critical value	Order of integration
RGDP	-4.1246	-3.5485	I(1)
EXCH	-4.0414	-2.9411	I(1)
INT	-2.6769	-1.9503	I(1)
MS	-4.4280	-2.9604	I(0)
GFCF	-4.5352	-2.9389	I(0)
EXPR	-5.4912	-1.949	I(1)
FDI	-3.4719	-2.9389	I(0)
ODA	-4.1807	-2.9411	I(0)
EXD	-5.2555	-2.9411	I(1)
PREM	-6.6416	-2.9411	I(1)

**Table 4.** Lag length criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	34.01860	NA	0.015650	-1.334367	-0.894500	-1.180842
1	76.62893	59.18101	0.001559	-3.646052	-3.162199	-3.477174
2	80.71654	5.450150*	0.001322*	-3.817586*	-3.289746*	-3.633355*
3	80.78961	0.093370	0.001402	-3.766090	-3.194263	-3.566507
4	81.19324	0.493317	0.001462	-3.732958	-3.117145	-3.518022

\* indicates lag order selected by the criterion

The result from Table 4 above suggests a lag order of 2 across the various information criteria. The study therefore adopted the ARDL model using lag 2.

#### 4.1 Bounds test result

The bounds test result from Table 5 shows that there exists a long-run relationship among the variables in the model. The F-statistic of 3.826 lies outside the critical value bounds of I0 bound and I1 bound, hence there exist the presence of Cointegration in the model. This further informs our decision to adopt an ARDL Error Correction Model for our analysis. The result of this model is presented in Table 6.

**Table 5.** ARDL bounds test

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	3.826	8
Critical Value Bounds		
Significance level	I0 Bound	I1 Bound
10%	1.95	3.06
5%	2.22	3.39
1%	2.79	4.1

**Table 6.** ARDL error correction model result

Variables	Coefficients	Std. errors	t-stat	Prob
D(LRGDP)	0.9538	0.1068	8.930	0.0000*
D(LFDI)	0.0278	0.0092	3.013	0.0056**
D(EXP_REV)	-4.70	3.13	-0.149	0.8819
D(LGCF)	0.0709	0.0235	3.016	0.0055*
D(PREM)	-0.0062	0.0030	-2.009	0.0545**
D(EX_RATE)	0.00033	0.00022	1.485	0.1489
D(EXT_DEBT)	-1.57	1.09	-1.448	0.159
D(M2)	9.88	4.80	0.2057	0.838
D(ODA)	9.69	0.00032	0.2962	0.7693
ECM	-0.886	0.2384	-3.716	0.0009*

Source: output from E-VIEWS \*\* and \*significant at the 5% level and 1% respectively.

The result from Table 6 represents the ARDL Error Correction Model and it measures the dynamics of the

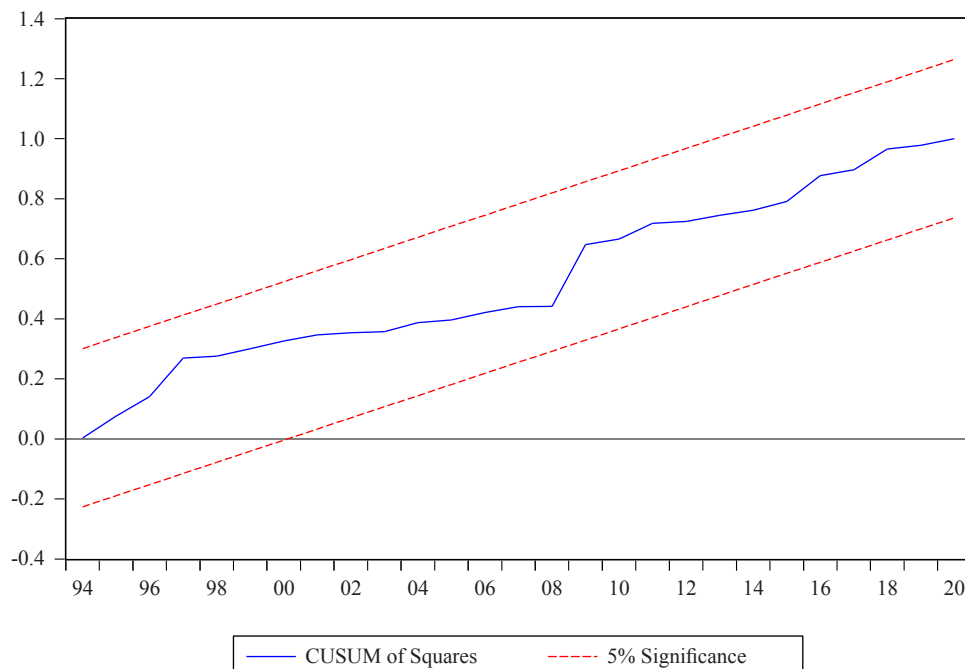
parameters in the short-run. Foreign direct investment has a significant and positive relationship with RGDP, such that a 1 percent increase in foreign direct investment will lead to an increase in RGDP by 2.78% everything else being equal. Furthermore, Gross fixed capital formation (GFCF) was also found to be significant and positive at the 5% level of significance. One percent increase in GFCF, will lead to an increase in RGDP by 7.09% at the 5% level of significance. The lag value of the dependent variable RGDP was found to be statistically significant and positive. This suggests that a 1% increase in the lag value of RGDP leads to increase in RGDP by 95.38% at the 5% level of significance. There was a negative and significant relationship between personal remittances (PREM) and RGDP, suggesting that as personal remittances increases by 1%, RGDP will decrease by 0.62% at 5% level of significance. Other variables employed in the model were found not to be statistically significant at any of the significant levels.

The error correction coefficient estimated at -0.886 proved to be highly significant and negative. This suggests that the speed of adjustment to the equilibrium is very high and it also confirms the existence of a stable long-run relationship among the variables.

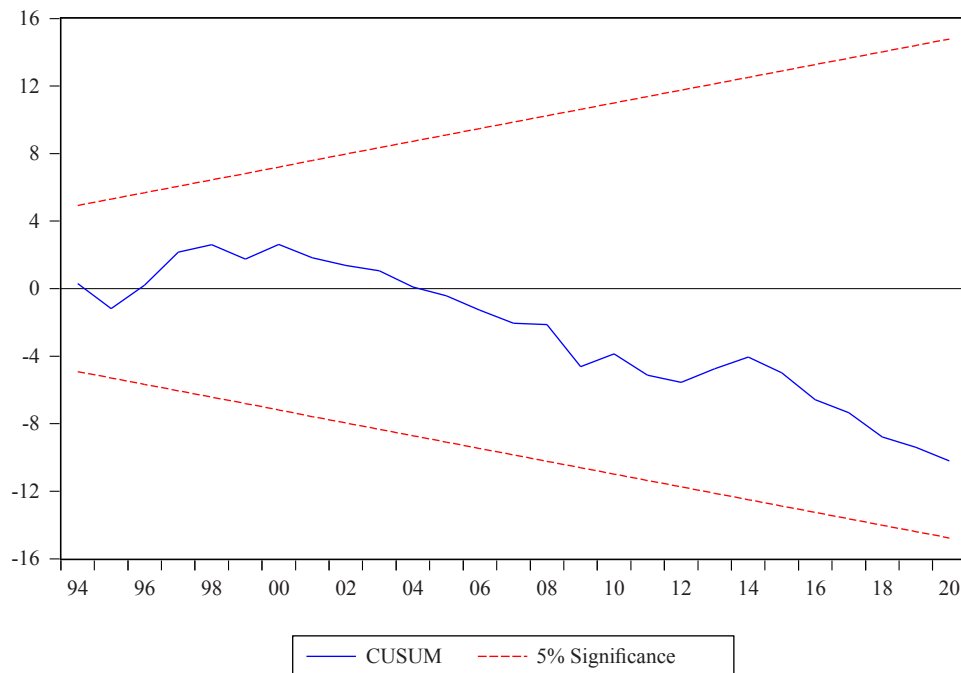
**Table 7.** Serial correlation test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.132332	Prob. F(2,25)	0.8767
Obs*R-squared	0.367980	Prob. Chi-Square(2)	0.8319

The study employed the Breusch-Godfrey test to check the presence of serial correlation in the analysis. The result on Table 7 indicates that there is no serial correlation in the model. The null hypothesis of no serial correlation was not rejected since the Prob. F(2, 25) of 0.8767 is greater than the critical value of the probability at 5% level of significance. The study therefore concludes that there is no serial correlation in the model.







**Figure 1.** Stability Test

The results from the stability test (Figure 1) reveals that the ARDL short-run model is relatively stable and has passed the entire diagnostic test. Both the CUSUM and CUSUMSQ tests suggest that there is no evidence of autocorrelation in the results at the 5 percent level of significance.

## 5. Discussion

The study found that Foreign Direct Investment (FDI) is positively associated with Real Gross Domestic Product (RGDP) and statistically significant. The result obtained from this relationship lends credence to other studies that obtained similar results (Herzer et al., 2006). This suggests that investments from abroad play a significant role to economic growth in Nigeria. The analysis also shows that personal remittances (PREM) had a negative and significant relationship with economic growth in Nigeria. This suggests that personal remittances contribute negatively and significantly to economic growth in Nigeria. It could also be that personal remittances are channeled into more of consumption than into productive activities in the economy leading to a negative relationship to economic growth in Nigeria. According to Montiel (2006), and Saadi-Sedik and Petri (2006), increase in remittances leads to the appreciation of real exchange rate while studies by Izquierdo and Montiel (2006) and Rajan and Subramanian (2005), were inconclusive on the issue. Some authors have studied the impact of exchange rate instability on foreign capital inflows in Nigeria, especially FDI and found a direct relationship between FDI and exchange rate Osinubi and Amaghionyeodiwe (2009).

## 6. Conclusion and recommendation

The focus of this research work is to empirically investigate the effect of foreign capital inflows: FDI, personal remittances and Gross Fixed Capital Formation on Economic growth in Nigeria using time series data of 1981-2020. In an attempt to ascertain the nature of the relationship between real gross domestic product and foreign capital inflows,

exchange rate, external debt, money supply and domestic investment variables were employed. The study adopted the ARDL and error correction models, and the results show that there is the presence of Cointegration using the bounds test approach. The Error Correction Model showed a negative but significant relationship, confirming the existence of a long-run relationship amongst the variables in the model. The study also found personal remittances to be negative and foreign direct investment to be positive and significant, indicating that foreign direct investment contributes positively to growth in Nigeria. Hence, government should continue to fine tune bilateral trade and investment agreements with other nations of the world. Furthermore, when a country is secure, it will attract investments from abroad. Therefore, government should tackle insecurity squarely in order to give investor's confidence about investing in the country. Finally, government is encouraged to raise policies that will lead to increase in productivity of domestic industries in order to maintain high export revenue.

## Conflict of interest

There are no conflict of interest amongst authors. The entire work is solely inputs from authors.

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