




INFLATIONARY RATE IN NIGERIA: IMPACT OF FOREIGN CAPITAL INFLOWS

 **Olabode Eric Olabisi**

Faculty of Humanities, Social and Management Sciences, Elizade University, Ilara-Mokin, Ondo State, Nigeria.

Email: olabode.olabisi@yahoo.com Tel: +2349036914036



ABSTRACT

Article History

Received: 5 July 2021

Revised: 10 August 2021

Accepted: 7 September 2021

Published: 20 September 2021

Keywords

Foreign direct investment

Net official aids

Remittance inflows

Autoregressive distributed lags

Foreign capital inflows

Nigeria.

JEL Classification:

F21; F32.

As the prices of daily needs are aggravating in Nigeria, the value of the country's currency (naira) is less appreciated on a daily basis, and this pose a threat to a good standard of living in Nigeria. Therefore, this study investigated the impact of foreign capital inflows on the persistent increase in inflation in Nigeria over the period of 1985 to 2019. The Autoregressive Distributed Lags was used to obtain the parameter estimates of the long run relationship between foreign capital inflows and inflation. By using the Forecast Error Variance Decomposition techniques, the cause-effect analysis of foreign capital inflows and inflation was determined. Results provide evidence of a long run relationship between the series. Results further indicate that inflation is sensitive to foreign capital inflows variables such as net official development assistance received and remittance inflows in Nigeria. Policies that reduce the negative impact on inflation are recommended in the body of the paper.

Contribution/Originality: In the previous literature, the influence of external capital inflows on inflation across the globe had been neglected. This may be an oversight on the part of the researchers. Hence, this paper contributes to the existing literature by investigating the influence of foreign capital inflows on inflation in Nigeria.

1. INTRODUCTION

The context of inflation has emerged as a crucial issue in the fiscal and monetary discussion particularly for developing countries. Different evidences have emerged in the literature on the determinants of inflation. Nigeria is currently characterised with persistent rising in inflation. In the past two decades, inflation in Nigeria has been on the high side with effect on the citizens (Fabayo & Ajilore, 2006). With this development, a growing interest in the study of macro-economic determinants of inflation has now become a research area that many researchers considered very important because of the implications for a proper macroeconomic functioning of an economy (see, (Adeleye, Ogundipe, Ogundipe, Ogunrinola, & Adediran, 2019; Aisen & Veiga, 2005; Moser, 1995; Narayan, Narayan, & Mishra, 2011)). When inflation is on the rising path, economic growth may be badly affected, however, it is not an easy task to solve the problem of inflation. It is better to empirically study the macro-economic variables that inflation is sensitive to so that necessary monetary and fiscal policies can be put in place. To do this, both domestic and external factors assumed to be causing unnecessary rise in inflation should be empirically analyzed.

The review of literature on the determinants of inflation indicates that excess money supply within the economy, fiscal deficit; interest rate, exchange rates and growth rate of output are majorly considered (see the literature section). To the best of our knowledge, the influence of external factors such as capital inflows variables

remains silent in the previous studies. Meanwhile, the impact of capital inflows such as remittances inflows, foreign direct investment and others can greatly cause inflation to rise if not well managed.

Foreign capital inflows provide external fund to meet the domestic fund deficit of any nation. This could be in form of foreign direct investment, remittance inflows, foreign portfolio investment, foreign aid, foreign loan, foreign private investment, international bond offering and so on. Foreign capital inflow is necessary when country's capital investment exceeds the actual revenue or savings. However, when these foreign capital inflows into a domestic economy failed to be channeled into an economic activity that has the capacity to generate the expected growth in return, the resultant effect is that excess liquidity within the economy would be chasing a few outputs, and this leads to inflation.

To further extend and fill the lacuna in the previous studies, this paper attempts to provide empirical evidences on the research question "does inflation sensitive to foreign capital inflows in Nigeria?" that remains unanswered so far in the literature.

1.1. Recent Trend of Inflation in Nigeria

In the recent time, inflationary pressure in Nigeria is becoming worrisome that both experts in the fiscal and monetary fields are curious to delve into research on what factors responsible for the alarming state of rising inflation. Figure 1 below indicates the trend of inflation in Nigeria from 2015 to 2019. For instance, in 2015, 2016, 2017, 2018 and 2019 inflation rates in Nigeria stood at 9.00 percent, 15.67 percent, 16.52 percent, 12.09 percent and 11.39 percent respectively. These high inflationary figures show that Nigeria economy is affected by some macro-economic variables which requires immediate empirical research and government policy attention. In view of this, it is pertinent to study what inflation is actually sensitive to within the Nigeria context. Remittance inflows and foreign direct investment inflows are part of the common foreign capital inflows that can meet the saving-investment gap in most developing economies of the world. The impact of remittance inflows and foreign direct investment (FDI) inflows could be felt in two directions. Firstly, to promote economic growth and development. Secondly, influx of the duo variables could cause excess supply of fund into an economy and consequently cause inflation if not properly managed. The foreign direct investment is seeing as an investment-smoothing possibility and can reduces the negative effect of inflation if it meets the supply side of the economy.

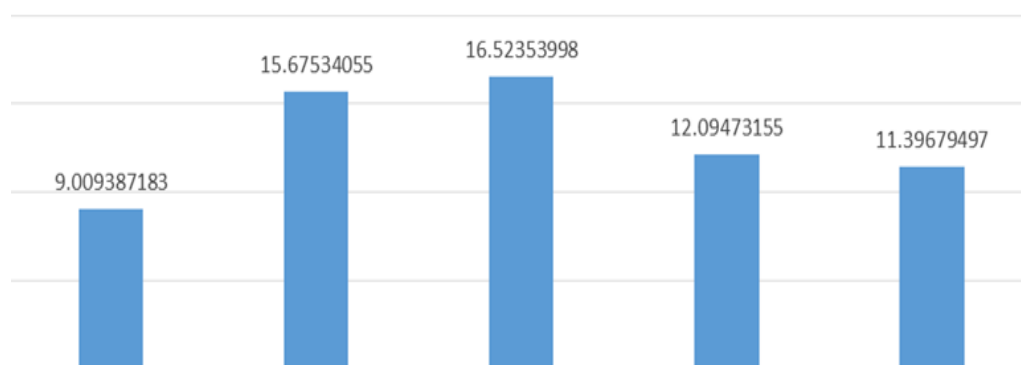


Figure-1. Nigerian inflation rate, 2015-2019.

The aim of this study is to extend the work on the determinants of inflation in Nigeria. We use annual time series data set spanning over the 1985–2019 period to estimate both the short-run and long-run parameter coefficients. The remainder of this paper is organised as follows. In section 2, we discuss the theoretical literature which underpins the study. In section 3, we explain the empirical methodology, model and the estimation technique. In section 4, we analyze and discuss the results. Lastly, in section 5, we provide some concluding remarks and policy recommendations.

2. THEORETICAL UNDERPINNINGS

The discussion on the topic of determinants of inflation has been widely debated in the macro-economic literature, especially in recent years because of the persistent insatiability global international prices of items and the impact on the well-being of the people across the globe. The literature delved into this on the basis of two theoretical components explaining the drivers of inflation; these are the monetarists and structuralist perspectives. Milton Friedman, a proponent monetarist opined that inflation is a monetary phenomenon. He further explained that inflation occurs from unguided expansion in aggregate demand resulting from the persistent yearly government deficits budgeting financed partly by local increase in money supply and foreign loans cause inflation. Asserting that expansion in monetary policy exert an upward trend in locally prices of goods and services.

On the contrary, another cause of inflation may be as a result of over-dependence on importation by the importing countries on major consumable items. In that case, inflationary pressures are typically supply-sided due to large importation and instability of exchange rate. In the light of this, implementing monetary and fiscal policy constraints in regulating macro-economic condition-(inflation) may have growth negative effect and further cause inflation to fall. This is typically the idea of the structuralist or the supply-sided perspective in explaining inflation.

Moser (1995) investigated the determinants of inflation in Nigeria. Error correction model based on money market equilibrium conditions was developed and found that expansionary fiscal policy, naira devaluation and agro climatic conditions were major factors inducing the increase of Inflation in Nigeria. Adeleye et al. (2019) examined the internal and external drivers of inflation in Nigeria using the annual time series data ranging from 1981 to 2017. Employing the econometric techniques of Johansen cointegration analysis, the vector error correction mechanism and the impulse response function, the study suggested that external forces such as exchange rate and openness are major factors responsible for persistent increase in the prices of goods and services in Nigeria. Government expenditures, net food export and lending interest rate are all accounted as internal drivers of inflation in Nigeria. None of these studies in the literature mentioned the impact of foreign capital inflows on inflation, particularly for the case of Nigeria.

Aisen and Veiga (2005) combined both developed and developing countries in examining the determinants of inflation based on panel data set covering the period from 1960 to 1999. They applied generalized method of moments estimator and within-group (fixed effects) estimator and discovered that inflation is sensitive to high political unstable atmosphere. Their results also revealed that both trade openness and economic growth decreased inflation, while increase in oil prices and the U.S. Treasury bills aggravate inflation. Narayan et al. (2011) also investigated the determinants of inflation by considering 54 developing countries spanning 1995–2004. Using a set of panel data, Arellano and Bover and the Blundell and Bond system generalized method of moments were employed for estimation techniques. Results from their estimations show that remittances, openness, debt, current account deficits, the agricultural sector, and the short-term U.S. interest rate induce inflation while improvement in the practice of democracy reduces inflation. Though, the results of Narayan et al. (2011) may indicate that remittances promotes inflation in some developing countries, however, remittances can also bridge the saving-investment gap in most developing countries. The inflows of remittances increase the income of any nation. In the study of the relationship between remittance outflows and inflation in the GCC countries, Termos, Naufal, and Genc (2013) empirically concluded that remittance outflows depress inflation.

In examining the link between remittances and inflation in Philippines, Rivera and Tullao Jr (2020) employed the econometric techniques of forecast error variance decomposition and orthogonal impulse–response function to determine the effect of remittances inflows into Philippines. Using monthly data from January 2000 to October 2019, the findings show that remittances are not inflationary driven but increase in inflation in the recipient-countries encourage the migrant workers to sending more funds to their families in order to cater for high, better and improved standard of living.

3. EMPIRICAL METHODOLOGY

The Engle and Granger (1987) test is a two-step method of cointegration suitable for estimating only two variables in a model. This test is based on testing the residuals of the time series data. This method has two major limitations; (1) it is only suitable when the time series model involves only two variables; (2) it is a single equation model that is not applicable for dynamic and multiple equations. Johansen cointegration test is another method of testing cointegration for non-stationary time series data. However, Johansen test is subject to asymptotic properties, that is, it can only be used when there is large sample size, and the variables in the series are expected to have the same order of integration before the long run relationship among the variables can be determined. In view of these limitations, this study employs the ARDL cointegration method suggested by Pesaran, Shin, and Smith (2001) because: (1) it is suitable to test both the short-run and the long-run cointegration among the macro-economic variables; (2) it is useful when some of the explanatory variables in the model are endogenous; (3) it is suitable when the variables in the model are integration of mixture of level I(0) and first difference I(1); and lastly, it cater for estimating both small and large sample size data. To start with, the study carried out the unit root test of 34 years' annual time series of Nigeria from 1985 to 2019. All data were sourced from World Development Bank Indicators website. All variables are in logarithm form except inflation.

3.1. Unit Root Test

In this study, we applied the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) unit root tests to examine the stationary stance for the long-run relationship of time series variables.

Below is the equation representing the ADF unit root test:

$$\Delta Y_t = \beta_0 + \beta_1 Y_{t-1} + \sum_{j=1}^k d_j \Delta Y_{t-j} + \varepsilon_t \quad (1)$$

Where ε_t represents the pure white noise error term, Δ indicates the first difference operator, Y_t is an annual time series, β_0 is the constant and k is the optimal lags length of the response variable.

The ADF unit root test determines whether the estimates of the parameters are equal to zero. When the ADF coefficients of the statistics are less than the critical values of the fuller table, the variable is said to be stationary, otherwise, it is non-stationary. The PP unit root test is based on t-statistics and is written as follows:

$$\Delta Y_t = \beta + \delta^* Y_{t-1} + \varepsilon_t \quad (2)$$

3.2. ARDL Bound Testing Approach

In this study, we employ the Autoregressive Distributed Lag (ARDL) cointegration method developed by Pesaran, Shin, and Smith (2000); Pesaran et al. (2001) with the inclusion of unrestricted vector error correction model to explore the long-run relationship between foreign direct investment, remittance inflows net official development assistance received and inflation. For the purpose of estimation, we developed an ARDL model as follow:

$$\begin{aligned} \Delta INF_t = & \varphi_0 + \varphi_1 \sum_{i=1}^p \Delta INF_{t-1} + \varphi_2 \sum_{i=1}^p \Delta FDI_{t-1} + \varphi_3 \sum_{i=1}^p \Delta REM_{t-1} + \varphi_4 \sum_{i=1}^p \Delta NOA_{t-1} + \\ & \gamma_1 INF_{t-1} + \gamma_2 FDI_{t-1} + \gamma_3 REM_{t-1} + \gamma_4 NOA_{t-1} + \mu_i \end{aligned} \quad (3)$$

Where φ_0 is the constant and μ_i is the error term; the error correction dynamics is represented by a summation sign, while the second part of the equation corresponds to long-run relationship. Akaike Information Criterion (AIC) has been used to determine the optimum lag length of the model. The F -statistics value is determined by estimating the ARDL models, while the Wald test is used to examine the long-run relationship among the variables. The null hypothesis of no cointegration occurs when the calculated F -test statistics is higher than the upper and lower critical bound value. It is inconclusive if the F -test statistics is between the upper and lower critical bound. Consequently, the null hypothesis of no cointegration is accepted when the F -statistics result is below the lower critical bound. Once the long-run relationship between foreign capital inflows, and inflation is established, then we proceed to estimate the long-run coefficients. To estimate the long run coefficients, the model below is employed:

$$INF_t = \delta_0 + \delta_1 \sum_{i=1}^{\rho} INF_{t-1} + \delta_2 \sum_{i=1}^{\rho} FDI_{t-1} + \delta_3 \sum_{i=1}^{\rho} REM_{t-1} + \delta_4 \sum_{i=1}^{\rho} NOA_{t-1} + \mu_i \tag{4}$$

Once there is evidence that there is a long run relationship between foreign capital inflows, remittance inflows, net official development assistance received and inflation, the study then proceed to estimate the short run parameters by employing the model in Equation 4.

$$\Delta INF_t = \omega_0 + \omega_1 \sum_{i=1}^{\rho} \Delta INF_{t-1} + \omega_2 \sum_{i=1}^{\rho} \Delta FDI_{t-1} + \omega_3 \sum_{i=1}^{\rho} \Delta REM_{t-1} + \omega_4 \sum_{i=1}^{\rho} \Delta NOA_{t-1} + \tau EC_{t-1} + \mu_t \tag{5}$$

The speed of adjustment needed to restore the shock in the short run to a long-run equilibrium is determined through the use of error correction model (EC) in Equation 4. τ is the parameter of error correction term.

4. ESTIMATIONS AND RESULTS

4.1. Unit Root Test Results

To determine the stationary properties, we employ the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. We first carried out the unit root tests using level data and thereafter performed these tests based on first difference data.

As indicated in Table 1, the results of the series are stationary and integrated at first difference. This shows that all the variables may show a long run association.

The ARDL cointegration method is employed to estimate the long-run relationship between foreign direct investment, remittance inflows, net official development assistance received and inflation. We achieve this in two steps. Firstly, the optimal lag lengths of the variables are determined with the result from AIC.

4.2. ARDL Bound Test Results

The ARDL bound test results in Table 2 reject the null hypothesis of no cointegration because the value of the F -statistics is higher than both the lower and the upper bound critical value at the 5 per cent level of significance. Hence, the results is in favor of the alternative hypothesis that concludes there is a long-run relationship between foreign direct investment, remittance inflows, net official development assistance received and inflation in Nigeria.

Table-1. Reveals the results of the ARDL cointegration method.

Variables	ADF				PP			
	Level		First Difference		Level		First Difference	
	T-stat.	C.V	T-stat.	C.V	T-stat.	C.V	T-stat.	C.V
INF	-2.569	-3.556	-4.297	-3.160	-3.050	-3.548	-5.718	-3.552
REM	-2.459	-3.536	-4.360	-3.511	-2.219	-3.517	-6.235	-3.152
FDI	-1.437	-3.506	-3.702	-3.560	-3.010	-3.552	-9.924	-3.002
NOA	-2.348	-3.156	-3.531	-3.240	-2.668	-3.112	-4.793	-3.212

Note: The Critical Values (C.V) for ADF and PP tests with constant and trend at the 5% level of significance respectively.

Table-2. Indicates the bound test result.

F-statistic value	5.71
Test Statistic at 5% significance	
Lower Bound (I0)	3.06
Upper Bound (I1)	4.11

4.3. Optimal Lag Length Selection Results

Table 3 ascertain the optimal lag length used to estimate the model, we employed the unrestricted vector autoregression (VAR) method to decide the best lag length. The decision criterion is based on minimum value of AIC of lag 2 as shown in Table 3.

Table-3. Indicates Optimal Lag Length Selection Results.

Lag Order	FPE	AIC	HQIC	SBIC
0	331.703	8.64031	8.71707	8.34623
1	239.194	8.31201	8.40413	8.57593
2	208.866*	8.17456*	8.28202*	8.48246*
3	219.878	8.22341	8.34623	8.5753

Note: FPE = Final Prediction Error; AIC = Akaike's information criterion; HQIC = Hannan-Quinn Information Criterion AND SBIC = Bayesian information criterion. The level of significance is 5%.

Since the valid evidence that the long-run relationship between foreign direct investments, remittance inflows, net official development assistance received and inflation has been established, we then move ahead and applied the ARDL method of estimation to determine the long-run and short-run coefficients. The short run and long run models for estimating the coefficients are stated in Equation 4 and 5.

4.4. ARDL Short and Long-Run Results

Table 4 indicates the results of the short-run and long run ARDL estimations. In the long-run, results indicate the positive and significant impact of remittances inflows on inflation while net official development assistance received reveals a negative and significant impact on inflation in Nigeria.

The coefficient of NOA shows negative contribution on inflationary dynamism in Nigeria, this means that in long run, a 1 per cent increase in NOA causes an increase in the inflationary rate by 8.50 per cent. This is not surprising because most of the official aids received by Nigerian government are not channeled to production of goods that can reduce over-reliance on foreign products by the citizens. Remittances inflows resulted to a positive and significant result in the long run but insignificant in the short run. This implies that 1 percent increase in remittances inflows will lead to 7.45 percent decrease in the inflationary rate. This result implies that, increase in the remittances inflows in Nigeria with corresponding increase in the productivity activities (investments) will decrease the rate of inflation. This contradicts the outcome of the research by Khan and Islam (2013) and Roy and Rahman (2014) that concluded that increase in the remittance inflows cause a simultaneous increase in the inflation rate. Though, remittance inflows may be inflation inducing when it leads to increase in demand without

simultaneous increase in supply of goods and services. This is the case currently in Nigeria. Demand is increasing without a corresponding increase in supply.

Table-4 ARDL short and long-run results.

Variable	Coefficient	Prob.
Short-run coefficients results		
D(FDI)	5.1949	0.8701
D(NOA)	1.1567	2.1221
D(REM)	0.1114	0.7111
ECT	-0.64	0.01*
Long-run coefficients results		
C	8.2490	0.0277
LFDI	-1.6253	0.7043
LNOA	-8.5042	0.0377*
LREM	7.4533	0.0433*

4.5. Diagnostic Tests

Table 5 reveals the diagnostic tests results of the ARDL model. It is evidence that the autoregressive distributed lags model employed in the analysis is suitable for the study. The values of 0.6062(0.7050) and 3.3767(0.1501) show that the model is free from heteroscedasticity and autocorrelation issues.

Table-5. Indicates the heteroscedasticity and serial correlation results.

Heteroscedasticity Test: Breusch-Godfrey	
F-statistic	0.6062(0.7050)
Ho: The variance of the residuals is homogenous	
H1: The variance of the residuals is not homogenous	
Serial correlation LM Test: Breusch-Godfrey	
Ho: The errors are uncorrelated between the explanatory variables	
H1: The errors are correlated between the explanatory variables	
F-statistic	3.3767(0.1501)

Source: Heteroscedasticity and serial correlation post estimation tests using Eviews 10.

4.6. Stability of the Long-Run Model

The stability of the ARDL long-run model is evaluated by using the recursive estimates on the residuals. The test is able to detect any systematic changes from the coefficients of regression, and also whether there is stability in the regression model. Figure 1 shows there is evidence of stability of the model in the long-run.

5. FORECAST ERROR VARIANCE DECOMPOSITION ANALYSIS

Economic literature confirmed it that the Granger causality test has a limitation. The results of the Granger causality test weaken its reliability because it cannot analyze the strength of causal relationship beyond the selected time period (Raza, Jawaid, Afshan, & Karim, 2015). To analyze the strength of the causal relationship of inflation and foreign capital inflows, we adopted a method of generalized forecast error variance decomposition method under the VAR system. The variance decomposition method provides the extent of the predicted error variance for a period of time. This method has extensively used in the economic literature for the purpose of predicting error variance and causal relationship among the variables under estimation [see, (Raza et al., 2015; Shahbaz, 2012; Wong, 2010)]. Table 6 presents the results of the variance decomposition analysis for inflation, foreign direct investment inflows, net official aids received and remittance inflows.

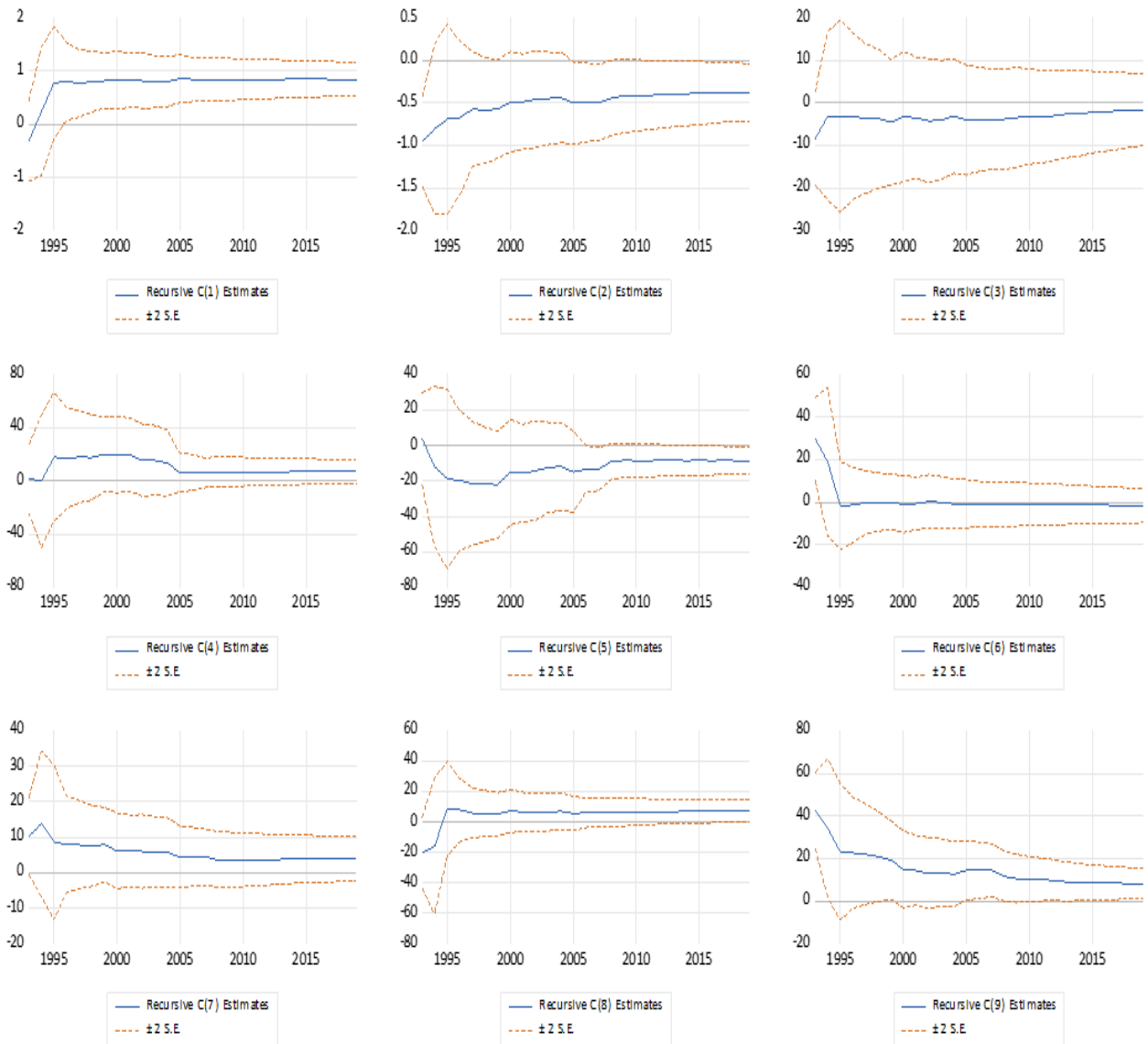


Figure-2. Stability of the Long-Run Model.

Results of Table 6 show that in the first period, the complete shock of inflation is explained by its own innovations, while in the second period, 0.50 per cent is explained by FDI innovation, 3.34 per cent by net official aids received innovation and 0.51 per cent by remittances innovation and the remaining 95.64 per cent demonstrated by the own inflation innovation. In the fifth period, 1.98, 8.14 and 16.63 per cent, respectively, confers the FDI, net official aids received and remittance inflows. In tenth period, 2.11 per cent shock is explained by FDI innovation, 9.20 per cent shock is explained by net official aids received innovation and 16.57 per cent shock by workers' remittance inflows innovation.

The results indicate that the innovation of foreign direct investment, net official aids received and workers' remittance inflows explain 2.11, 9.20 and 16.57 per cent shock in inflation, respectively. Conversely, the innovations of inflation, NOA and REM explain 6.92, 5.87 and 24.99 per cent shock on foreign direct investment. While the innovations of inflations of inflation, FDI and REM explain 11.36, 6.27 and 3.90 per cent on net official aids received. Also, the innovations of FDI, INF and NOA explain 2.61, 30.15 and 18.05 per cent of remittance inflows, respectively. These findings suggest a unidirectional causality in between inflation, workers' remittances, net official aids received and foreign direct investment.

Table-6. Forecast Error Variance Decomposition Analysis Results.

Variance Decomposition of INF:					
Period	S.E	INF	LFDIDIFF	LNOADIFF	LREMDIFF
1	12.99436	100.0000	0.000000	0.000000	0.000000
2	16.91452	95.64439	0.502532	3.341992	0.511089
3	18.34951	86.25947	0.937573	3.102710	9.700243
4	19.10749	79.57101	1.357469	4.219306	14.85221
5	19.92092	73.23769	1.983237	8.141647	16.63743
6	20.00000	72.22633	2.097557	9.109073	16.56704
7	20.06340	72.20793	2.109774	9.107947	16.57435
8	20.07481	72.12675	2.115184	9.183891	16.57417
9	20.07695	72.11400	2.116594	9.197739	16.57167
10	20.07778	72.10950	2.11638	9.201298	16.57277
Variance Decomposition of LFDIDIFF:					
Period	S.E	INF	LFDIDIFF	LNOADIFF	LREMDIFF
1	0.537719	0.000172	99.99983	0.000000	0.000000
2	0.609443	2.780354	91.03855	0.921095	5.259998
3	0.670526	7.103467	76.83503	0.973672	15.08783
4	0.703902	7.166696	69.72178	3.741657	19.30987
5	0.743662	7.072972	63.15190	5.289958	24.48517
6	0.745758	7.056726	62.92154	5.403339	24.61839
7	0.752661	6.928788	62.18193	5.874351	25.01493
8	0.752838	6.927674	62.19418	5.874197	25.00394
9	0.753022	6.926252	62.20195	5.880089	24.99171
10	0.753065	6.926675	62.19944	5.879522	24.99430
Variance Decomposition of LNOADIFF:					
Period	S.E	INF	LFDIDIFF	LNOADIFF	LREMDIFF
1	0.582034	9.770406	5.492957	84.73664	0.000000
2	0.597628	10.14978	6.297259	82.75147	0.801487
3	0.654603	9.676496	6.202111	80.43101	3.690385
4	0.668393	11.13649	6.329780	78.85524	3.678489
5	0.671142	11.44789	6.298077	78.60426	3.649775
6	0.672313	11.40897	6.283192	78.58840	3.719431
7	0.673207	11.40176	6.276268	78.46447	3.857471
8	0.674224	11.36986	6.277020	78.45313	3.899987
9	0.674296	11.36821	6.278538	78.45298	3.900271
10	0.674346	11.36725	6.277821	78.45040	3.904532
Variance Decomposition of LREMDIFF:					
Period	S.E	INF	LFDIDIFF	LNOADIFF	LREMDIFF
1	0.773678	0.141880	28.23239	17.92003	53.70570
2	0.794255	2.508204	29.29901	17.15004	51.04274
3	0.818110	2.446387	31.09424	17.99024	48.46913
4	0.825495	2.588153	30.61308	17.91296	48.88581
5	0.828354	2.636137	30.40816	17.97663	48.97908
6	0.831524	2.618363	30.19820	18.05579	49.12765
7	0.832355	2.617913	30.15836	18.03653	49.18720
8	0.832673	2.615937	30.15728	18.04914	49.17765
9	0.832882	2.614986	30.15705	18.05673	49.17123
10	0.832893	2.615245	30.15828	18.05659	49.16989
Cholesky Ordering: INF LFDIDIFF LNOADIFF LREMDIFF					

6. CONCLUSION

There is overwhelming concern among Nigerian citizens about the negative impact of inflation in particular in the cost of living. This concern has increased studies about inflation and its determinants by scholars in the field. Therefore, the possibility of whether foreign capital inflows' variables can contribute to the increase in inflation has been the main focus of this study. This study investigated whether foreign capital variables contribute to the inflation dynamism in Nigeria by using yearly time series data covering 1985–2019, an ARDL procedure was used

to obtain the parameter estimates. To determine the predictability of the error variance and causal relationship between inflation and foreign capital inflows, the study employed a forecast error variance decomposition method within the VAR framework. The ARDL bound cointegration result confirms the valid long-run relationship among macroeconomic variables considered. Further results reveal a positive impact of foreign direct investment on inflation, and net official aids received have a significant negative relationship with the inflation in the long run. Results of variance decomposition test show the unidirectional causal relationship of inflation and the explanatory variables, i.e. net official aids received, remittance inflows and foreign direct investment.

These results emphasize the importance of remittances, not only to promote investment in the productive activities if well channeled but also to improve living conditions and contribute to gross domestic investment (GDP). Net official aids received increase the volume of funds available within the country but when these funds are not channel to productive activity that can promote gross domestic product in Nigeria, the resultant effect is high inflation. From a policy perspective, government and policymakers in Nigeria should encourage and facilitate to the extent possible the uninterrupted flow of remittance inflows. It is also suggested that funds from net official aids received should better be invested in a productive venture that can boost the country's gross domestic product (GDP). Hence, policymakers should focus on formulating policies for sustainable inflationary rate that promotes price stability and citizens' well-being.

Funding: This study received no specific financial support.

Competing Interests: The author declares that there are no conflicts of interests regarding the publication of this paper.

REFERENCES

- Adeleye, B. N., Ogundipe, A. A., Ogundipe, O., Ogunrinola, I. I., & Adediran, O. (2019). Internal and external drivers of inflation in Nigeria. *Banks and Bank Systems*, 14(4), 207-219. Available at: [https://doi.org/10.21511/bbs.14\(4\).2019.19](https://doi.org/10.21511/bbs.14(4).2019.19).
- Aisen, M. A., & Veiga, M. F. J. (2005). Does political instability lead to higher inflation? A panel data analysis. International Monetary Fund. Working Paper No. 05-49, 1-16.
- Engle, R. F., & Granger, C. W. (1987). Co-integration and error correction: representation, estimation, and testing. *Econometrica: journal of the Econometric Society*, 55(2), 251-276. Available at: <https://doi.org/10.2307/1913236>.
- Fabayo, J. A., & Ajilore, O. T. (2006). Inflation: How much is too much for economic growth in Nigeria. *Indian Economic Review*, 41(2), 129-147.
- Khan, Z. S., & Islam, S. (2013). The effects of remittances on inflation: Evidence from Bangladesh. *Journal of Economics and Business Research*, 19(2), 198-208.
- Moser, G. G. (1995). The main determinants of inflation in Nigeria. *Staff Papers*, 42(2), 270-289. Available at: <https://doi.org/10.2307/3867573>.
- Narayan, P. K., Narayan, S., & Mishra, S. (2011). Do remittances induce inflation? Fresh evidence from developing countries. *Southern Economic Journal*, 77(4), 914-933. Available at: <https://doi.org/10.4284/0038-4038-77.4.914>.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2000). Structural analysis of vector error correction models with exogenous I (1) variables. *Journal of Econometrics*, 97(2), 293-343. Available at: [https://doi.org/10.1016/s0304-4076\(99\)00073-1](https://doi.org/10.1016/s0304-4076(99)00073-1).
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289-326. Available at: <https://doi.org/10.1002/jae.616>.
- Raza, S., Jawaid, S. T., Afshan, S., & Karim, M. (2015). Is stock market sensitive to foreign capital inflows and economic growth?: Evidence from Pakistan. *Journal of Chinese Economic and Foreign Trade Studies*, 8(3), 142-164. Available at: <https://doi.org/10.1108/jcefts-03-2015-0012>.
- Rivera, J. P. R., & Tullao Jr, T. S. (2020). Investigating the link between remittances and inflation: Evidence from the Philippines. *South East Asia Research*, 28(3), 301-326. Available at: <https://doi.org/10.1080/0967828x.2020.1793685>.

- Roy, R., & Rahman, M. (2014). An empirical analysis of remittance–inflation relationship in Bangladesh: post-floating exchange rate scenario. Munich Personal RePEc Archive. Paper No. 55190, 1-38. Available at <https://mpra.ub.uni-muenchen.de/55190/>.
- Shahbaz, M. (2012). Does trade openness affect long run growth? Cointegration, causality and forecast error variance decomposition tests for Pakistan. *Economic Modelling*, 29(6), 2325-2339. Available at: <https://doi.org/10.1016/j.econmod.2012.07.015>.
- Termos, A., Naufal, G., & Genc, I. (2013). Remittance outflows and inflation: The case of the GCC countries. *Economics Letters*, 120(1), 45-47. Available at: <https://doi.org/10.1016/j.econlet.2013.03.037>.
- Wong, H. T. (2010). Terms of trade and economic growth in Japan and Korea: An empirical analysis. *Empirical Economics*, 38(1), 139-158. Available at: <https://doi.org/10.1007/s00181-009-0259-9>.

Views and opinions expressed in this article are the views and opinions of the author(s), Quarterly Journal of Econometrics Research shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.