THE DYNAMIC RELATIONSHIP BETWEEN ECONOMIC INSTABILITY AND GROWTH IN NIGERIA: ARE REMITTANCE INFLOWS A SAFETY NET?

By:

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Abstract

The importance of economic stability has been demonstrated in some of the developed countries across the globe. However, the unprecedented economic instability experienced in many developing countries, particularly in Nigeria, has posed a significant challenge to economic growth and development. Therefore, this study investigated the dynamic relationship between economic instability and growth in Nigeria from 1980 to 2023. Employing econometric techniques such as descriptive statistics, ordinary least squares (OLS), autoregressive distributed lag bounds test, fully modified OLS, dynamic OLS, and pairwise Granger causality. Results showed there is a long-run relationship among economic instability, economic growth, real exchange rate, and remittance inflows in Nigeria. Furthermore, exchange rates and remittance inflows significantly and positively contribute to economic growth in Nigeria. The causality result showed that exchange rates and remittance inflows Granger cause economic growth, and not vice versa. The practical implications for economic growth suggest that the Nigerian government should embark on policy formulation and implementation that will ease the means of receiving remittances from abroad by promoting robust financial development. Also, the government should strengthen the foreign exchange market to create an enabling business environment that promotes stability, honesty, transparency, and accountability. Furthermore, the government should strengthen and reinforce the existing regulations in the foreign exchange market in order to curb unethical practices. While previous studies have largely focused on the macroeconomic determinants of economic growth, few have examined the dynamic response of growth to economic instability. Hence, this study contributes to the limited research in the field of study.

Keywords: Economic Growth, Ordinary Least Squares, Fully Modified OLS, Dynamic OLS, Remittance inflows

Introduction

Globally, economic stability is widely regarded as a prerequisite for economic growth and development of any nation. However, when there are unexpected shocks or fluctuations in any of the macroeconomic indicators, economic instability occurs. Consistent dynamism in variables such as gross domestic product (GDP) growth, exchange rates, inflation, and unemployment contribute significantly to economic destabilisation. Nigeria's economy has witnessed heightened economic instability in recent times. Following the world disruptions caused by the coronavirus (COVID-19) that adversely affected the world at large, Nigeria's GDP growth stood at 3.6 percent in 2021, declined to 3.3 percent, and further declined to 2.9 percent in 2022 and 2023, respectively (World Bank, 2024). Due to these fluctuations, the GDP per capita and purchasing power parity were adversely affected. According to the World Bank Open Data (2024), Nigeria's GDP per capita dropped from US$2,019 in 2020 to US$2,017 in 2021; although there was a slight increase in 2022 to US$2,139, it fell sharply to US$1,516 in 2023. These trends of economic instability pose a threat to economic growth and development; therefore, they necessitate a proactive policy by the stakeholders.

Economic growth refers to the increase in the production of goods and services produced in an economy over a specific period. A sustained rise in output over time promotes broader economic development. However, inflation is a macroeconomic indicator that can cause economic instability. Inflation is defined as a persistent rise in the price of goods and services. When inflation occurs, the purchasing power of business owners, individuals, and governments is eroded. In recent times, Nigeria has experienced a significant rise. Inflation rose from 11.39% in 2019 to 13.24% in 2020, 16.95% in 2021, 18.84% in 2022, and 24.65% in 2023.

As noted in the work of Azam and Haseeb (2021), inflation is one of the variables to measure economic instability because it disrupts the economic planning process due to unstable prices of goods and services. This undermines the local production and discourages foreign investment by signalling uncertainty in pricing. Nevertheless, Tien (2021) presented a divergent view, arguing that there are different effects of inflation on GDP. According to some schools of thought, inflation has no effect, while others believe that inflation has a negative or positive effect on GDP. According to the Keynesian school of thought, inflation promotes economic growth, while the classical school of thought maintains a neutral position. In contrast to both schools, the neoclassical school believed that inflation retards economic growth. Although the extent of the impact of inflation on output has no definite consensus in the literature, Khan and Hanif (2020) further argued that the inflation threshold beyond which inflation negatively affects outputs is typically higher in developing countries than in developed ones, largely due to political instability and institutional weaknesses.

Exchange rate fluctuations represent another source of economic instability. Frequent and significant fluctuations in currency values can adversely impact output by increasing import costs and disrupting both foreign investment and international trade. In an import-dependent nation like Nigeria, the effect may be a rise in the cost of goods and services. These economic challenges also drive emigration, particularly among skilled workers such as doctors, lecturers, nurses, and engineers, many of whom relocate to countries such as Canada, the United States of America, and other European countries. In short, an economically stable country attracts foreigners because it is easy to plan in a stable economy. In view of this, one of the ways for a country to boost the physical capital needed for an investment purpose, apart from borrowing or raising capital through the stock market. Remittance inflows serve as a vital channel for capital inflow into any country. It helps to empower communities to adopt eco-friendly technologies and practices and enhance food security through investment in agriculture. A large investment in agriculture can contribute to a stable economy because it can help to reduce commodity prices. According to available data in the World Bank database (2024), remittance inflows have been on the increase over the years. In 2020, US$17.2 billion was remitted into the Nigerian economy. This amount rose from US$19.48 billion in 2021 to US$20.17 billion in 2022, although it fell to US$19.54 billion in 2023.

Consequently, this study aims to investigate the dynamic relationship between economic instability and growth in Nigeria. Although previous studies in the literature have dealt with the macroeconomic determinants of economic growth, for instance, Oyebowale and Algarhi (2020) and Thaddeus et al. (2020), to the best of my knowledge, no study has specifically examined the dynamic relationship between economic instability and growth in Nigeria, particularly in relation to the question: *Are remittance inflows a safety net*? Furthermore, there is a notable gap in the literature regarding strategies to cushion the adverse effects of macroeconomic instability. Therefore, this paper has three objectives. First, to examine whether economic growth in Nigeria dynamically responds to economic instability. Second, to assess whether diaspora remittance inflows can mitigate the effect of economic instability or act as a safety net in Nigeria. Third, to determine the causality relationship between economic growth, economic instability, and remittance inflows.

The remainder of the study is as follows: the second section reviews the previous literature related to economic instability and growth in both developing and developed countries. The third section explains the methodology employed in the study. Section four discusses the empirical findings of the study. Finally, section five discusses the conclusions and policy implications.

Literature Review

To examine the relationship between economic instability and growth, the Keynesian, Neoclassical and Solow-Swan theories are used in this study. The Keynesian theory assumed that economic instability occurs when the aggregate demand outstrips aggregate supply (productive capacity) in an economy. The theory further assumed that when this occurs, disequilibrium will occur in the market and hence lead to a high cost of goods and services (inflation). To curb this problem, a country must increase productive capacity to match up with the aggregate demand; otherwise, the problem will persist. One of the ways to do this is by increasing the capital base of the country and promoting investment in productive economic activities, particularly in consumable commodities. Meanwhile, in the work of Tien (2021), it was revealed that the Keynesian school of thought believed that inflation promotes economic growth. The neoclassical theory assumed that inflation is a monetary phenomenon and not fiscal. The theory assumed that an excess of money supply in any economy causes inflation. The neoclassicists further believed that a low inflation rate is important for a stable economy that can promote economic growth. The neoclassical model further opined that increased aggregate demand causes higher inflation, especially when production does not match with demand.

According to Tien (2021), neoclassical believes inflation retards economic growth. Although the Solow-Swan growth model generally does not talk about economic instability. The model focuses on how an economy can attain long-run steady growth, which is primarily the concern of this study. The model believes that to attain long-run steady-state economic growth, capital accumulation growth, labour force growth, and technological progress are crucial. This is evidenced in the work by Tolmachev et al. (2021) that the Solow-Swan model is geared toward modelling long-run economic growth. Similarly, Li and Li (2022) also employed the Solow-Swan model to examine the economic growth with capita-induced labour migration.

To understand the economic instability dynamics on growth, it is pertinent to review previous literature in the field of study. Among others, Khan, I. (2024) concludes that positive remittance inflow shocks promote economic growth, while negative remittance inflow shocks do not affect economic growth. To address the gaps in the previous literature, the study conducts an empirical review because this will reveal the scope, findings, econometric techniques, suggestions for future research, and contributions of the previous scholars in the related field of study. Khan (2024) examines the impact of positive and negative remittance inflow shocks on the economic growth of India. Using a time series of annual data from 1976 to 2021 and a nonlinear autoregressive distributed lag model technique (NARDL), findings show that when there are positive remittance inflow shocks, economic growth increases. However, when negative remittance inflow occurs, economic growth remains the same. Adaramola and Dada (2020) examine the impact of inflation on economic growth in the case of Nigeria from 1980 to 2018. By employing the autoregressive distributed lag (ARDL) estimation technique, findings show that inflation and exchange rate have a significant and negative impact on economic growth. On the contrary, interest rates and money supply exert a positive impact on economic growth.

Also, Kadozi (2019) investigates the impacts of remittance inflows on economic growth in Sub-Saharan African countries and Rwanda from 1980 to 2014. Using a random effect and instrumental variable, findings show no statistically significant impact of remittances on economic growth in the region. On the empirical front, the remittance and economic growth relationship in the case of Rwanda shows that there is a positive impact. Meyer and Shera (2017) examine the impact of remittance inflows and economic growth in some selected countries in Europe from 1999 to 1999–2013. Using both the random and fixed effect techniques, findings reveal that remittances have a positive impact on economic growth. Jongwanich and Kohpaiboon (2019) investigate the effect of volatility of workers' remittances on economic growth of five South Asian countries from 1975 to 2009. Employing the Johansen and Juselius cointegration technique, the finding shows that there is a significant positive long-run relationship between remittances and economic growth in four Asian countries, while a negative relationship was revealed for Pakistan.

The exchange rate is a key component in international trade activities that promotes a country's export performance. In line with the Marshall–Lerner elasticity theory, a depreciation of the domestic currency can promote exports by making domestic goods more competitively priced in international markets (Adams & Metwally, 2021). Lawal et al. (2022) examine the causal relationship between economic growth and exchange rate, remittances, trade, and agricultural variables in ten selected African countries from 1980 to 2018. The econometric technique of Dumitrescu and Hurlin's (2012) Granger causality test was employed. Findings show a mixed causality between the series. By using a frequency domain model, two-way causality exists between economic growth and exchange rate, trade, agriculture, and remittances. However, findings from the time domain model show no significant causal relationship exists between economic growth and both remittances and agricultural output. However, a significant causality exists between economic growth and both exchange rate and trade.

Also, Doan Van (2020) investigates the effect of real exchange rate misalignment on economic growth. By employing the Generalised Method of Moments (GMM) estimation technique, findings show that there is no significant direct impact of real exchange rate misalignment on economic growth. However, the indirect result shows a negative impact. While the traditional views assert that there is a positive impact of foreign exchange rates on economic growth, the structural economists believe in a negative relationship. Therefore, Karahan (2020) examines the relationship between foreign exchange rate and economic growth in Turkey. By using quarterly data and econometric techniques of Johansen and Granger causality, a negative result was revealed between exchange rate and economic growth. To cap it up, Rapetti (2020) carried out a survey of literature on the relationship between exchange rate and economic growth; mixed results were revealed. Also, Missio et al. (2015) examine the relationship between exchange rate and economic growth from 1978 to 2007. By employing the quantile regression econometric technique, the finding shows that exchange rates promote economic growth.

Methodology and Data

The study uses time series data over the period 1980–2023 to empirically analyse the relationship among inflation, real exchange rate, economic growth, and remittance inflows. The selection of the variables has been guided by the objectives of the study and the previous empirical literature in the field of study (see Azam and Haseeb, 2021). The dependent and explanatory variables, namely economic growth proxied by gross domestic product per capita, economic instability proxied by inflation rate (INFR), exchange rate (EXCH), and remittance (REM), were all sourced from the World Development Indicators (WDI), World Bank database (2024). The study used inflation to proxy economic instability as argued by Azam and Haseeb (2021), that the best approach to measure economic instability is through the use of inflation. Although exchange rate volatility, high unemployment rates, and many more can destabilise the economy.

Table 1.

Research variables, definition, measurement and sources of data

Variable	Operational definition of variables	Measurement	Source
Economic instability	inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	economic instability is proxied by inflation	WDI
Real Exchange rate	real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a	Real effective exchange rate index (2010 = 100)	WDI

	price deflator or index of costs		
Economic growth	economic growth is the increase in aggregate production within an economy, usually reflected by a rise in national income.	gross domestic product per capita	WDI
Remittance inflows	migrant remittance inflows are defined as the sum of worker's remittances, compensation of employees, and migrants' transfers recorded in the IMF Balance of Payments	personal remittances, received (current US$)	WDI

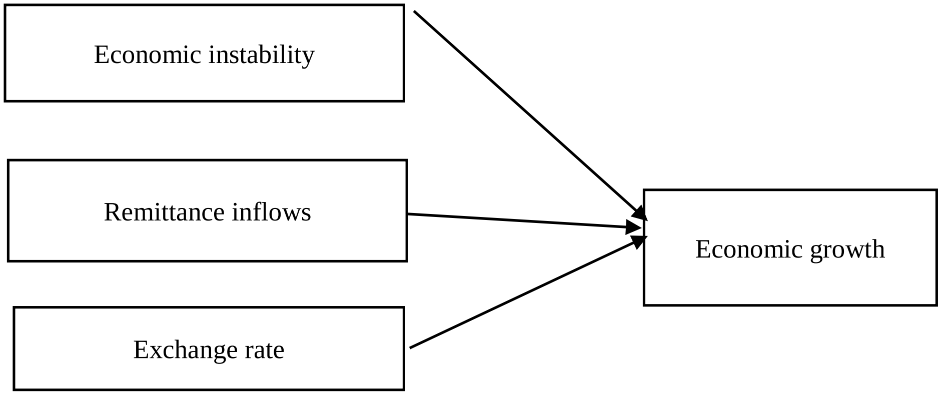
Source: World Bank Indicators (WDI) (2025)

Theoretical framework

The study on the relationship between inflation, real exchange rate, economic growth, and remittance inflows is based on the Solow-Swan growth model, which generally does not talk about economic instability. The model focuses on how an economy can attain long-run steady growth, which is primarily the concern of this study. The model believes that to attain long-run steady-state economic growth, capital accumulation growth, labour force growth, and technological progress are crucial. This is evidenced in the work by Tolmachev et al. (2021) that the Solow-Swan model is geared toward modelling long-run economic growth.

Figure 1.

Research Framework



Source: Developed by the author (2025)

Estimation Techniques

The study carried out step-by-step estimation techniques in examining the dynamic response of economic growth to economic instability, and also answered the following research question. First, are remittance inflows a safety net in the dynamics of Nigerian economic growth as a result of economic instability? Second, is there a causality between remittance inflows and economic growth in Nigeria? To empirically achieve these objectives, the study engaged both the traditional and modern estimation techniques. The first calibration process is to run a descriptive statistic, followed by employing the traditional empirical technique of ordinary least squares (OLS). The Ordinary Least Squares (OLS) regression method is used in this study because of its simplicity, interpretability, and efficiency, especially when its assumptions of linearity, heteroskedasticity, stability, autocorrelation, and normality are met. Also, it provides clear interpretations of the coefficients, allowing one to understand the impact of each explanatory variable on the dependent variable. To ensure the reliability and fitness of the OLS model, the diagnostic tests of autocorrelation, heteroskedasticity, normal distribution, and stability were carried out. To ensure the robustness of the study, modified versions of OLS econometric techniques were used. Therefore, the study proceeded by using the Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Squares (DOLS) for the purpose of a robustness check. Both

FMOLS and DOLS offered the following advantages over the traditional OLS. First, it addresses the serial correlation and endogeneity issues that may be present in the error terms. Second, the use of both FMOLS and DOLS leads to more reliable and efficient coefficient estimates. Lastly, both econometric techniques are useful in estimating small samples. By testing the robustness of the OLS model using the FMOLS and DOLS, it is important to examine the stationary features of the macroeconomic variables employed. This is to avoid spurious estimation regression results. To do this, the study employed the Autoregressive Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests at both level and first difference. Furthermore, the study employed the ARDL bounds test to establish the long-run association among the series. To answer the third objective of the study, that is, the causality between economic growth and remittance inflows, the pairwise causality test was used.

Model Specification

Based on the theoretical framework of the Solow-Swan model, the relationship between inflation, remittance inflows and economic growth is captured by a semi-log linear model expressed in equation (3) below. Following the works of Azam and Haseeb (2021) and Tolmachev et al. (2021), the estimated equation is as follows:

$$\mathrm{LRGDP_i} = \alpha_0 + \beta_1 \mathrm{LEXR_t} + \beta_3 \mathrm{INF_t} + \beta_3 \mathrm{LREM_t} + \varepsilon_t \quad (1)$$

Where $RGDP_t$ is the economic growth proxy by real gross domestic product per capita, EXR_t is the real exchange rate, INF_t is the economic instability proxy by inflation, REM_t is the remittance inflows, while α_0 represents the intercept, β_1- β_3 are the coefficients of the explanatory variables. Lastly, the ε_t is the stochastic term.

To estimate the causal relationship between remittance inflows and economic growth in Nigeria vice versa,

the study put forward the following causality equations written in equation (2) and (3) below:

$$RGDP_t = \alpha_0 + \sum_{j=1}^{K} \beta_j REM_{t-j} + \sum_{j=1}^{K} \gamma_j INF_{t-j} + \sum_{j=1}^{K} \varphi_j EXCH_{t-j} + \varepsilon_t \quad (2)$$

$$REM_t = \alpha_0 + \sum_{j=1}^{K} \beta_j RGDP_{t-j} + \sum_{j=1}^{K} \gamma_j INF_{t-j} + \sum_{j=1}^{K} \varphi_j EXCH_{t-j} + \varepsilon_t \quad (3)$$

Diagnostic Test

To ensure unbiased and non-spurious regression results, there is a need to conduct a diagnostic test on the estimation technique applied in the study. Therefore, the following diagnostic tests were carried out: Serial correlation, heteroscedasticity, normal distribution, and CUSUM stability.

Results and Discussion

Preliminary Analysis

In this study, the following preliminary analyses such as, descriptive statistics, unit roots, ARDL bounds test were carried out. This is to determine the suitable estimation technique for the study.

Descriptive Statistics

The result in Table 2 presents the mean, median, maximum, minimum and standard deviation values for the variables used in this study. The results reveal that the mean values for GDP, EXCH, and REM were 7.120, 4.808, and 20.635, respectively. The positive mean values imply that there is an upward trend in all the variables. However, the mean value of INF is 18.872 per percent which indicate high value, hence, there is possibility of economic instability in Nigeria. Also, the median value of 12.941 for inflation is equally a signal that the country is experiencing high prices of goods and services. In fact, the maximum value of 72.835 for inflation is also a signal for likely economic instability in Nigeria.

Table 2.

Descriptive Statistics Results

	LGDP	INF	LEXCH	LREM
Mean	7.120	18.872	4.808	20.635
Median	7.376	12.941	4.659	20.949
Maximum	8.035	72.835	6.285	23.914
Minimum	6.143	5.388	3.907	14.701
Std. Dev.	0.600	16.149	0.590	3.202
Skewness	-0.269	1.903	0.948	-0.479
Kurtosis	1.557	5.619	3.026	1.737
Jarque-Bera	4.347	39.145	6.595	4.605
Probability	0.113	0.000	0.036	0.099
Sum	313.286	830.390	211.585	907.973
Sum Sq. Dev.	15.509	11214.330	14.974	440.933
Observations	44	44	44	44

Source: Processed data (2025)

Unit root test result

The results in Table 3 show ADF and PP unit roots at both level and first difference. At the 5 percent significance level, INF results indicate stationarity at level across the two-unit root tests with p-values below 0.05. For other variables such as EXCH, GDP and REM, the reverse is the case. At level, the variables revealed non-stationarity; hence, the research accepts the null hypothesis of non-stationarity at levels and rejects the alternate hypothesis that all variables are stationary at levels. Testing at first difference for both ADF and PP, all the variables are stationary; hence, the study rejects the null hypothesis and accepts the alternative hypothesis that all variables are stationary at first difference.

Table 3.

ADF and PP Unit Root Results

Variable	**Level ADF**		**1st difference ADF**		**Level PP**		**1st difference PP**	
	t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*
GDP	-1.772	0.388	-6.524	0.000	-1.772	0.388	-6.524	0.000
INF	-3.166	0.029	–	–	-3.026	0.040	–	–
log EXC	-2.023	0.276	-4.546	0.000	-2.141	0.230	-4.526	0.000
log REM	-0.619	0.855	-5.548	0.000	-0.619	0.855	-5.554	0.000

Notes: LevelPP and ΔPP indicate the level and first-difference of Phillips-Perron unit root test, and LevelADF and ΔADF indicate the level and first-difference of Augmented-Dickey Fuller unit root test; *denotes rejection of the null hypothesis of non-stationary at 5% significance level.

Source: Processed data (2025)

ARDL bounds test result

In order to establish whether there is a long-run co-integration relationship among inflation, exchange rate, remittance inflows and economic growth in Nigeria, the study employed the ARDL bounds test approach. The result of the ARDL bounds test is presented in Table 4. According to the result, the calculated F-statistic value of 9.271 is greater than the critical values of the lower bound and the upper bound at all the significance levels. Thus, the null hypothesis, which states that the variables are not co-integrated, is rejected; hence, the alternative of long-run cointegration is accepted. The study concludes that the variables in this study have a long-run relationship.

Table 4.

ARDL bounds Test

		Significance Level	Lower Bound	Upper Bound
F-statistic	**9.271**	10%	3.122	4.707
K	3	5%	4.231	2.351
		2.5%	2.609	2.809
		1%	2.219	3.610

Source: Processed data (2025)

Ordinary Least Square Test

The results from Table 5 indicate that inflation is insignificant to determine the dynamism in the economy of Nigeria. But the exchange rate and remittance inflows results are crucial in determine the growth of Nigerian economy. At 5 percent statistically significant value, the result show that a 1 percent increase in exchange rate promote economic growth by 0.003 percent. Also, a 1 percent increase in remittance inflows increases economic growth of Nigeria by 0.171 percent. The result is in line with Khan (2024) who also revealed a positive impact of remittance inflows on economic growth of India.

Table 5.

Ordinary Least Squares Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCH	0.002	0.005	4.844	0.000
INF	-0.009	0.003	-0.260	0.795
LREM	0.171	0.021	8.099	0.000
C	3.194	0.522	6.116	0.000

Source: Processed data (2025)

Diagnostic Checks

The study carried out various diagnostic tests such as serial correlation, heteroskedasticity, normality, and stability. The purpose is to show how fit the OLS model is used in the estimation of the data. Table 6 indicates the test results at a 5 percent statistical significance level; the probability values of 0.1985 and 0.1732 for both heteroskedasticity and serial correlation show the OLS model is fit to produce unbiased results. Also, Figure 2 shows the normality distribution test result, at a 5 percent significant level, the probability value of 0.637 for the Jargue-Bera value of 0.905 indicates that the variables employed in the study are normally distributed. Therefore, the normality assumption of classical linear model does not violate. In the same vein, In Figure 3, the stability test was carried out using CUSUM test, and.

the blue line in the middle of the two red lines shows the model is stable and will produce good and unbiased results.

Table 6.

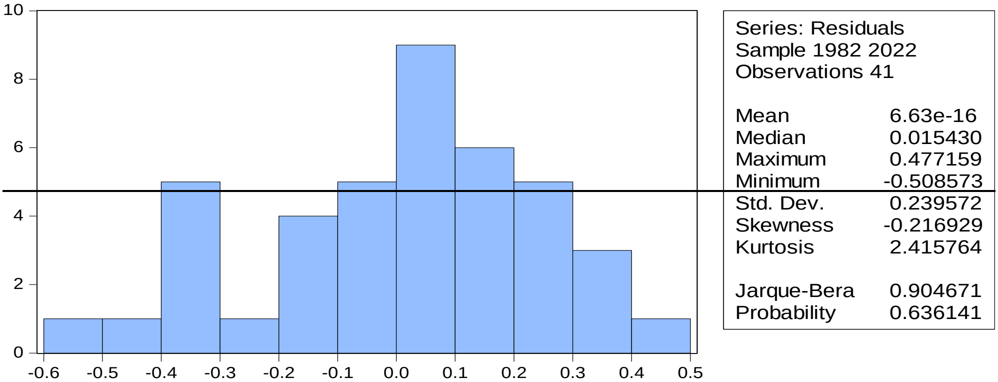
Diagnostic Results for OLS Estimation Model

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.626	Prob. F(3,40)	0.198
Obs*R-squared	4.782	Prob. Chi-Square(3)	0.188
Scaled explained SS	3.718	Prob. Chi-Square(3)	0.293
Breusch-Godfrey Serial Correlation LM Test			
F-statistic	12.473	Prob. F(2,38)	0.173
Obs*R-squared	17.437	Prob. Chi-Square(2)	0.211

Source: Processed data (2025)

Figure 2.

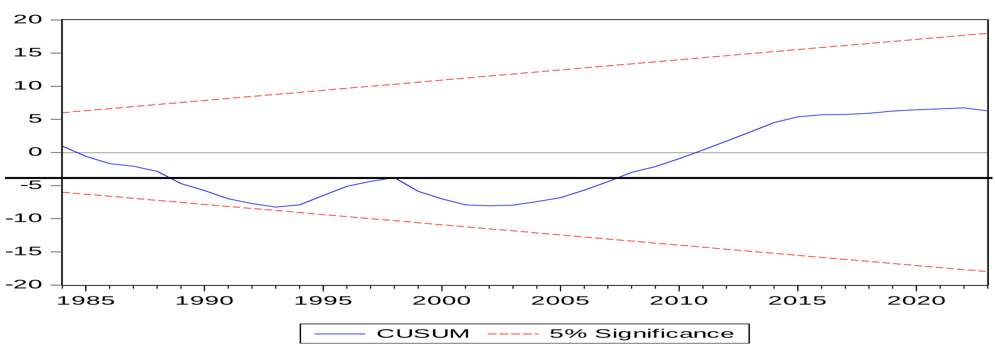
Normal Distribution Test Result



Source: Processed data (2025)

Figure 3.

Stability Result



Source: Processed data (2025)

Robustness Check

To ensure accuracy and robustness of the OLS estimation results, and for the purpose of good policy recommendations, it is pertinent to conduct robustness checks. Following step-by-step econometric procedures of using the modified versions of OLS, that is, FMOLS and DOLS, it is important to establish the stationary properties of the variables used for this study because most macroeconomic data are non-stationary in nature. To avoid spurious estimation results, a stationary test is required. More so, the cointegration status also needs to be established in order to determine the most suitable cointegration test to be employed. For this reason, the ADF and PP unit root tests were employed, while the Autoregressive Distributed Lag (ARDL) bounds test was used to test the long-run association among the series.

Fully Modified and Dynamic Ordinary Least Squares Test Results

Similarly, at 5 percent statistically significant level, the FMOLS and DOLS results from Table 7 indicate that the traditional OLS used for the estimation purpose is robust, fit, and unbiased. The results reaffirmed that inflation that is used as a proxy of economic instability is insignificant to explain economic growth dynamism in Nigeria. Also, the coefficient of exchange rate is positive and significant to explain the dynamism of economic growth in Nigeria. Remittance inflows is also positive and significant to promote economic growth in Nigeria.

Table 7.

FMOLS and DOLS Results

FMOLS					DOLS			
Variable	Coeff.	Std. Error	t-Stat.	Prob.	Coeff.	Std. Error	t-Stat.	Prob.
INF	-0.009	0.004	-0.022	0.982	0.004	0.009	0.500	0.620
LEXCH	0.636	0.128	4.954	0.000	0.583	0.253	2.305	0.028
LREM	0.167	0.024	6.935	0.000	0.183	0.043	4.262	0.000
C	0.626	0.974	0.642	0.524	0.450	2.073	0.217	0.829

Source: Processed data (2025)

Pairwise Granger Causality Test Results

The causality relationship results in Table 8 show that EXCH has a one-way causality with GDP, and not vice versa. This indicates that a favourable exchange rate will enhance many investment activities in the country because of the capital inflows. When this arises, per capita income will increase as well. This implies that more investment will boost economic growth and overall standard of living. Similarly, remittance inflows reveal a one-way causality with GDP, and not vice versa. This is very good for any developing economy like Nigeria because more remittance inflows will fill the shortage of funds in the country. The present Nigerian government relies so much on external borrowing to finance budget deficits, which come along with the cost of borrowing. Overall, more remittances into the country will promote economic growth.

Table 8.

Pairwise Granger Causality Test Results

Null Hypothesis:	**Obs.**	**F-Statistic**	**Prob.**
EXCH does not Granger Cause GDP	42	3.863	0.029
GDP does not Granger Cause EXCH	42	1.039	0.363
INF does not Granger Cause GDP	42	1.001	0.377
GDP does not Granger Cause INF	42	1.941	0.157
REM does not Granger Cause GDP	42	6.796	0.003
GDP does not Granger Cause REM	42	0.038	0.962
INF does not Granger Cause EXCH	42	0.495	0.613
EXCH does not Granger Cause INF	42	2.134	0.132
REM does not Granger Cause EXCH	42	0.165	0.847
EXCH does not Granger Cause REM	42	0.469	0.628
REM does not Granger Cause INF	42	1.190	0.315
INF does not Granger Cause REM	42	0.230	0.794

Source: Processed data (2025)

Discussion of Findings

In the relationship between economic instability and economic growth, by using inflation to proxy economic instability, result shows an insignificant relationship with economic growth in the case of Nigeria. From this result, evidence shows that economic instability arising from high inflation may not be responsible for the dynamism in the economic growth in Nigeria. However, other factors such as political stability, insecurity, corruption, bad governance may likely be the cause. Therefore, the null hypothesis that there is a significant and negative relationship between economic instability and economic growth in Nigeria is rejected. The outcome in this study is in line with the work of Nyenyia et al. (2017) who also revealed that inflation is insignificant to determine economic growth.

In the relationship between remittance inflows and economic growth, a positive result is revealed. This implies that an influx of remittances from abroad will boost investing activities in the country. As a result of this, more employment opportunities would be created, a better standard of living would be enhanced, and overall, better welfare would be provided. With this development, the country can use remittance as a safety net to cushion the shortage of capital in the country. Also, remittance inflows reveal a one-way causality with economic growth, and not vice versa. This is very good for any developing economy like Nigeria because more remittance inflows will fill the shortage of funds in the country. The present Nigerian government relies so much on external borrowing to finance budget deficits, which come along with the cost of borrowing. Overall, more remittances into the country will promote economic growth. The result is in line with several authors in the literature who believed remittance inflows are a source of capital generation and accumulation to promote the economy of any nation. The result is in line with several authors in the literature who believed remittance inflows are a source of capital generation and accumulation to promote the economy of any nation (see Meyer and Shera, 2017; Kadozi, 2019; Pal et al., 2022). Therefore, the null hypothesis that there is a significant and positive relationship between remittance inflows and economic growth in Nigeria is accepted.

In the relationship between exchange rate and economic growth, a positive result is revealed. In a situation where there are favourable exchange rates, currency appreciates and can have both positive and negative policy implications on economic growth. Generally, when there is a stable exchange rate, it promotes investments and economic activities by reducing uncertainty and business risks. Also, the causality relationship result shows that exchange rate has a one-way causality with economic growth, and not vice versa. This indicates that a favourable exchange rate will enhance many investment activities in the country because of the capital inflows. When this arises, per capita income will increase as well. This implies that more investment will boost economic growth and overall standard of living. In a survey of literature on the relationship between exchange rate and economic growth by Rapetti (2020), generally, exchange rate has a positive relationship with economic growth. The result is also in line with Audi (2024), who showed that in the long run, exchange rates positively impact economic growth. Therefore, the null hypothesis that there is a significant negative relationship between exchange rate and economic growth in Nigeria is hereby rejected.

Conclusion and Policy Recommendations

The dynamism of economic growth is a function of many factors, and one of them is economic instability. Therefore, this study examines whether the dynamism in economic growth is a function of economic instability and whether remittance inflows can function as a safety net in Nigeria. Annual time series data from 1980 to 2023 were utilised. Both descriptive and inferential statistical techniques were employed. Most importantly, economic instability was proxy by inflation, and the mean and maximum values revealed by inflation are considered excessively high for a stable economy, thereby indicating the potential for economic instability. The ARDL bounds test was considered suitable to investigate the long-run cointegration among INF, EXCH, REM, and GDP after the stationary properties of the variables had been tested. The objective of the study was estimated by using the traditional OLS estimator, and the study proceeded by using the FMOLS and DOLS to carry out the robustness check. The

ARDL bounds test F-statistic is greater than both the upper and lower critical values. This shows that there is a long-run relationship among INF, EXCH, REM, and GDP. Although the inflation result is insignificant to determine the dynamism of Nigerian economic growth, both remittance inflows and exchange rates were found to be positive and statistically significant contributors. The post-estimation results show that all the estimators used in this study are reliable and valid models for economic predictions. The fact that remittance inflows are positive is a good signal that the shortage of funds in the country could be catered to by remittance inflows. When effectively harnessed, remittances can stimulate investment in the country; there is a possibility that there would be more employment opportunities and a better standard of living if they were harnessed. The exchange rate that has a positive relationship with economic growth is also a good thing for the country because it will promote a stable exchange rate and reduce business risks and uncertainties.

From the empirical point, this paper suggests that the Nigerian government should embark on policy formulation and implementation that will ease the means of receiving remittances from abroad by promoting robust financial development within the financial institutions. Also, unnecessary charges that will cause administrative bottlenecks or elongate the timing of remittance inflows to Nigeria should be discouraged. The Nigerian government should empower the financial institutions to purchase sophisticated technology for the ease of processing remittance inflows into the country. Also, the government should enact a new remittance inflow act and legislation that will be geared towards promoting remittance inflow processes. The Nigerian government should also strengthen the foreign exchange market to create an enabling business environment that promotes stability, honesty, transparency, and accountability. Furthermore, the government should strengthen the existing regulations in the FOREX market in order to curb unnecessary sharp practices.

The findings of the study are subject to a few limitations. First, the data is limited; ideally, all the data would have been extended to 2024 for more recency purposes. Second, other economic instability variables are not captured in this study because of the unavailability of data. Therefore, future studies should focus on other factors such as political instability, unemployment, and so on that can cause economic instability when data is fully available for them. Finally, subsequent studies may consider examining the dynamic response of economic growth to sector-specific variables in the Nigerian economy rather than aggregate sector data.

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References

Adams, J., & Metwally, A. (2021). Testing for the Marshall–Lerner condition in Egypt: An empirical analysis. African Journal of Economic and Management Studies, *12(1),* 151–170. https://doi.org/10.1108/AJEMS-01-2020-0001.

Adaramola, A. O., & Dada, O. (2020). Impact of inflation on economic growth: evidence from Nigeria. Investment Management & Financial Innovations, *17(2),* 1-14. https://doi:10.21511/imfi.17(2).2020.01.

Audi, M. (2024). The impact of exchange rate volatility on long-term economic growth: Insights from Lebanon. MPRA Paper No. 121634. mpra.ub.uni-muenchen.de/id/eprint/121634.

Azam, M., & Haseeb, M. (2021). Determinants of foreign direct investment in BRICS-does renewable and non-renewable energy matter? Energy Strategy Reviews, *35(1),* 1-10. https://doi.org/10.1016/j.esr.2021.100638.

Doan Van, D. (2020). Money supply and inflation impact on economic growth. Journal of Financial Economic Policy, *12(1),* 121-136, https://doi.org/10.1108/JFEP-10-2018-0152.

Jongwanich, J., & Kohpaiboon, A. (2019). Workers' remittances, capital inflows, and economic growth in developing Asia and the Pacific. Asian Economic Journal, *33(1),* 39-65. https://doi.org/10.1111/asej.12167.

Kadozi, E. (2019). Remittance inflows and economic growth in Rwanda. Research in Globalization, *1(1),* 1-66. https://doi.org/10.1016/j.resglo.2019.100005.

Khan, M., & Hanif, W. (2020). Institutional quality and the relationship between inflation and economic growth. Empirical Economics, *58(1),* 627-649.

Khan, I. (2024). Analyzing the impact of positive and negative remittance inflow shocks on economic growth of India. Journal of Economic Studies, *51(2),* 338-356.

Karahan (2020). Influence of exchange rate on the economic growth in the Turkish economy. Financial Asset and Investing, *11(1),* 21-34. https://doi.org/10.5817/FAI2020-1-2.

Lawal, A. I., Salisu, A. A., Asaleye, A. J., Oseni, E., Lawal-Adedoyin, B. B., Dahunsi, S. O., ... & Babajide, A. A. (2022). Economic growth, exchange rate and remittance nexus: Evidence from Africa. Journal of Risk and Financial Management, *15(6)*, 1-13.https://doi.org/10.3390/jrfm15060235.

Li, B., & Li, Y. (2022). On a chemotaxis-type Solow-Swan model for economic growth with capital-induced labor migration. Journal of Mathematical Analysis and Applications, *511(2),* 1-13. https://doi.org/10.1016/j.jmaa.2022.126080.

Meyer, D., & Shera, A. (2017). The impact of remittances on economic growth: An econometric model. EconomiA, *18(2),* 147-155. https://doi.org/10.1016/j.econ.2016.06.001.

Missio, F. J., Jayme Jr, F. G., Britto, G., & Luis Oreiro, J. (2015). Real exchange rate and economic growth: new empirical evidence. Metroeconomica, *66(4)*, 686-714. https://doi.org/10.1111/meca.12087.

Thaddeus, K. J., Ngong, C. A., Nebong, N. M., Akume, A. D., Eleazar, J. U., & Onwumere, J. U. J. (2024). Selected macroeconomic determinants and economic growth in Cameroon (1970–2018)"dead or alive" an ARDL approach. Journal of Business and Socio-Economic Development, 4(1), 1-19. https://doi.org/10.1108/JBSED-05-2021-0061.

Tien, N. H. (2021). Relationship between inflation and economic growth in Vietnam. Turkish journal of computer and mathematics education, *12(14),* 5134-5139.

Tolmachev, M. N., Latkov, A. V., Mitrofanov, A. Y., & Barashov, N. G. (2021, June). Economic dynamics of Russia: approach based on the solow-swan model. In Proceeding of the International Science and Technology Conference" FarEastCon 2020" October 2020, Vladivostok, Russian Federation, Far Eastern Federal University (pp. 1063-1072). Singapore: Springer Nature Singapore.

Oyebowale, A. Y., & Algarhi, A. S. (2020). Macroeconomic determinants of economic growth in Africa. International Review of Applied Economics, *34(6)*, 839-57.https://doi.org/10.1080/02692171.2020.1792422.

Pal, S., Villanthenkodath, M. A., Patel, G., & Mahalik, M. K. (2022). The impact of remittance inflows on economic growth, unemployment and income inequality: An international evidence. International Journal of Economic Policy Studies, *16(1)*, 211-235.

Rapetti, M. (2020). The real exchange rate and economic growth: A survey. Journal of Globalization and Development, *11(2)*, 1-54.

Tolmachev, M. N., Latkov, A. V., Mitrofanov, A. Y., & Barashov, N. G. (2021, June). Economic dynamics of Russia: approach based on the solow-swan model. In Proceeding of the International Science and Technology Conference" FarEastCon 2020" October 2020, Vladivostok, Russian Federation, Far Eastern Federal University (pp. 1063-1072). Singapore: Springer Nature Singapore.