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NIGERIAN ECONOMIC GROWTH: DOES NET MIGRATION IMPROVE IT? EVIDENCE FROM THE ARDL MODELLING TECHNIQUE

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ABSTRACT

Although Nigeria accounts for the largest share of net migration in sub-Saharan Africa, its economic growth has failed to keep pace with the steady rise in net migration. Consequently, this study investigates the potential impact of net migration on Nigeria's economic growth from 1974 to 2021. These data came from World Development Indicators and the United Nations Conference on Trade and Development. Autoregressive Distributed Lag (ARDL) bounds testing method was employed. The cointegration test results indicate that net migration and economic growth have a cointegrating relationship. The empirical findings shows a strong negative long run relationship between net migration and economic expansion in Nigeria. Based on this finding, the study suggests that the government should work to reverse the undesirables that contribute to emigration from Nigeria, including low wages and an unfavourable incentive structure. Infrastructure development is a good way to accomplish this.

1.0 Introduction

Poor people from developing countries, particularly those in Sub-Saharan Africa (SSA), have long viewed international migration as a means of escaping poverty. Furthermore, the sub-region has been found to have the world's highest net migration growth rate. The welfare of the family, the local community, and ultimately the economy as a whole are all impacted by international migration in different ways (Ogu, 2022). Over the past 20 years, policy attention has grown to the phenomenon of international migration. This phenomenon is one of the primary forces behind development and social transformation worldwide, despite being influenced by a wide range of intricately interconnected and complex factors. These drivers are divided into three categories: micro, intermediate, and macro. Age, characteristics, personality, and education are examples of micro-level drivers; migration culture, smuggling, information, and technology are examples of intermediate-level drivers. On the other hand, macro-level factors include things like state welfare, economic opportunities, conflicts, migration governance and policies, and so forth. A thorough examination of these elements and their interdependence is necessary to identify the most significant driver or drivers among this bouquet of variables. Since different factors can simultaneously influence both the immigration and emigration rate, analyzing net migration within a nation becomes even more complex (Okikiola, 2022). Scholars like Massey (1988), Lilleor and Broeck (2011), Dumont (2014), Simpson (2017), and Castelli (2018) concur, though, that migration (immigration and emigration) and

macroeconomic conditions are inextricably linked. This is primarily because migration has economic benefits for both the host and the migrant's home countries. Nigeria has continuously maintained a negative net migration rate over the past four (4) decades, according to data from the United Nations, (2022). When considering net migration within a nation, this analysis becomes more difficult because some factors can influence both immigration and emigration. However, based on theories and empirical analysis, researchers (Massey, 1988; Lilleor and Broeck, 2011; Dumont, 2014; Simpson, 2017; Castelli 2018) concur that migration (both immigration and emigration) is strictly linked with macroeconomic conditions. This is largely because migration has economic benefits for both host and home countries of migrants. According to data sourced from the United Nations, Nigeria has persistently maintained a negative net migration rate for the last forty-eight years (United Nations, 2022).

The country's net migration has been declining and increasing quickly, particularly since the early 1990s, according to data from the World Development Indicators (2022) (net migration was -0.192 in 1992 rose to -0.241 in 2002 and to -0.363 in 2012). In addition, Nigeria's net migration decreased from -0.327 per thousand people in 2016 to -0.3 in 2017. 19 per thousand population, indicating a decrease from 2016. But in comparison to -0.295 per thousand population in 2020, it also increased to -0.288 in 2021, a 2.37 percent decrease (WDI, 2022). Remarkably, Nigeria continues to play a significant role in global net migration. The nation accounted for roughly 17% of the net migration in the Sub-Saharan region in 2017, according to the World Development Indicator (Ogu, 2022).

People move away from their usual places of residence for a variety of reasons, including push and pull factors. The main causes of the massive movement of men and women within and outside of Nigeria are the country's high unemployment rate, migrant remittances, population growth, unstable politics, ethno-religious conflicts, and poverty (Darkwah and Verter, 2014). People are also forced to relocate in search of better living conditions due to poor economic conditions and high levels of poverty, particularly young adults and youth Ghebru et al. (2018). Most of the time, migration not only gives the migrant more power, but it is also recognized for its connection to labor force mobility—moving within a profession is frequently more likely when one migrates (Ghebru et al. 2018, Basso et al. 2018).

The nation's net migration has been negative and keep rising, particularly since the early 1990s (net migration increased from -0 point192 in 1992 to -0 point241 in 2002 and -0 point363 in 2012). In addition, the net migration rate for Nigeria decreased from -0.327 per thousand population in 2016 to -0.3 in 2017. 19, representing a decrease from 2016 per thousand people. But it also increased to -0.288 in 2021, down 2 points37 percent from -0.295 per thousand people in 2020 (WDI, 2022).

Nigeria is ranked lower than other emerging economies like Brazil (0.055 per 1,000 population), Russia (0.874 per 1,000 population), and South Africa (2.258 per 1000 population) with its 2021 net migration rate of -0.288 per 1,000 population. Over the past forty (40) years, Nigeria has seen a greater number of emigrants than immigrants; however, numerous researchers have pinpointed a variety of drivers or factors that contribute to this trend. Individual traits (or micro-level factors), household factors, economic circumstances, geographic factors, poverty, social transformation, and so forth are a few of these factors (Okikiola, 2022).

In light of this, the study aims to investigate empirically whether net migration has an impact on Nigeria's economic growth. In addition, the paper is organized as follows after the introduction: Section 2 review of the conceptual and empirical literature; Section 3 refers to methodology, model specification,

description and data source, estimation technique and Section 4 presents analysis and discussion of results, while section 5 concludes and offers policy recommendations.

2.0 Literature Review

2.1 Review of Conceptual Literature

2.1.1 Economic Growth

Economic growth is the increase in a nation's overall output that results from an increase in its real GDP. The nation's efforts to reduce unemployment, raise societal incomes, and provide public services are all made easier by the country's economic growth. Economic growth is a gauge of the economy's long-term growth. It is a gauge of the economy's yearly growth and expansion or a representation of the relative power or strength of an economy. The annual productivity of all citizens and foreign residents living inside a nation's borders, including its overseas territories like embassies and acquired military bases, is measured by the Gross Domestic Product (GDP). Real GDP is the result of dividing GDP by the GDP deflator index and multiplying the answer by 100 (Adugh, 2019).

2.1.2 Net Migration

Net migration is the difference between the annual total of immigrants those who move into a region and emigrants those who leave it. In addition, the net migration rate for a specific time period is the difference between the number of people who emigrate moving away from one region to live elsewhere and the number of people who come from another region to live there. When a region's net migration rate is positive, more people are moving there than are leaving. On the other hand, when there is a negative net migration rate, more people are leaving an area than entering it. Like many other population statistics, the net migration rate is typically reported per 1,000 residents over a year, based on the estimated population at the halfway point of the population year (Liu, 1975).

2.2 Review of Empirical Literature

The neoclassical theory of migration put forth by Tadaro, Smith, and Lewis (1970) serves as the foundation for the model developed in this study, which illustrates the connection between net migration and economic growth. The most important factors influencing migration were covered by the neoclassical theory of migration. According to the theory, factors driving migration include differences in wages and employment opportunities between nations as well as the costs of migration. The theory states that prospective migrants weigh the advantages and disadvantages of moving before deciding to do so; migration is therefore assumed to occur if their expected return (ER) is positive (Arango, 2000). This theory of migration is predicated on well-known ideas such as utility maximization, rational choice, expected net returns, factor mobility, wage differentials, and the idea that migration is the outcome of unequal labor and capital distribution across geographic boundaries (Arango, 2002). Since the majority of those who migrate from their country of origin are skilled and trained professionals, they constitute a brain drain to the host economy. This loss of human capital or resources has a significant detrimental impact on the economy they are leaving behind. In summary, the emigration of professionals and skilled individuals from Nigeria (known as NMGR) essentially compromises economic growth. Neoclassical models of economic growth actually imply that migration may increase output per capita in the destination country while decreasing total output in the country of origin. This theory offers a framework for comprehending the connection between net migration and economic growth, making it pertinent in light of the Nigerian context.

There are conflicting results from the empirical research on the relationship between net migration and economic growth

in Nigeria; some studies found a positive relationship, while others found a negative one, and in some cases, no conclusive evidence was found. For instance. Using a two-stage least squares estimation technique, Akanbi (2017) investigated the effects of migration on human development and economic growth in sub-Saharan African countries between 1999 and 2013. The findings showed that migration and economic growth have a substantial negative correlation. However, using a descriptive analysis approach, Muhammed, Abubakar, & Isah (2018) investigated the effect of net migration on the overall fertility rate in Sub-Saharan African countries. Time series data spanning from 2000 to 2016 were employed. The results showed that sub-Saharan Africa's overall fertility rate is positively and significantly impacted by net migration. The relationship between migration and remittances in Africa was examined by Igbafe & Ogbeide (2022). The research utilized secondary data spanning from 2000 to 2020, which were subjected to Random Effect analysis. According to the findings, migration significantly and favorably impacted economic development, whereas remittances significantly and negatively impacted the same.

Kotani & Kotani (2012) used the Ordinary Least sq\. (OLS) regression technique to evaluate the impact of net migration on economic growth in Indonesia between 1993 and 2005. The findings show that delayed reproduction has no impact on economic expansion. Furthermore, the outcome demonstrates that, once net migration is taken into account in the model, there is a substantial and negative correlation between population growth and economic growth. Thus, the author came to the conclusion that one important factor influencing economic growth is net migration. Using input-output analysis, Ramfrez & Gonzalez (2018) looked into how migration affected Spain's economic growth between 2009 and 2015. The findings demonstrated that migration and economic expansion are positively correlated. Ceesay (2020) used a linear regression model to investigate how migration and remittances affected employment in agriculture in the Gambia between 1960 and 2017. The findings demonstrated that migration and remittances significantly increase employment in agriculture by generating both skilled and unskilled jobs. The findings also revealed a negative and noteworthy relationship between foreign aid and employment in agriculture.

Afaha (2013) used a household survey-based approach to examine the relationship between migration, remittances, and development in Nigeria from 1977 to 2008. The findings show a strong and positive correlation between migrant workers' remittances and Nigeria's economic expansion. Between 1991 and 2011, Darkwah & Verter (2014) looked into the factors that affected Nigerians' decision to migrate abroad. The method of ordinary least square estimation was applied. The findings suggest that the main factors influencing emigration from Nigeria to other nations are the rate of unemployment, migrant remittances, and population growth. The data also demonstrates a significant positive correlation between the number of Nigerians living overseas and the country's unemployment rate, migrant workers' remittances, and population growth. Olarinde (2015) looked at how migration affected Nigeria's economic growth and human capital between 1980 and 2011. Migration, the development of human capital, and economic growth have a significant positive long-term relationship, according to the results of the Ordinary Least square (OLS) technique. Furthermore, from 1980 to 2016. Abiola (2019) looked into the effects of labour migration, remittances, and economic growth in Nigeria. In order to analyse the relationship between the variables, the researcher employed the indirect least squares method. The result suggests that emigration and economic growth are positively correlated.

The effects of migration on the Nigerian economy were studied by Adedokun & Karzanova (2019) using data from 2014 to 2017. The researchers found that high unemployment rates have contributed to a rise in brain drain and emigration rates in recent years, but they have also produced high migrant remittances in Nigeria, which outpace FDI and development assistance inflows and have become a significant source of foreign exchange earnings for the nation. The researchers clarified that one of Nigeria's main causes of emigration is unemployment. Their research's flaw, though, is that it ignores the factors that encourage immigration into the nation and does not provide an empirical analysis proving that unemployment is a (significant) contributing factor to national migration abroad. With an OLS regression analysis, Okikiola (2022) investigates the empirical relationship between net migration and Nigeria's macroeconomic condition from 1991 to 2020. The results indicate a regression value (R2) of 0.847, indicating that 85 percent of the variation in the country's net migration rate can be explained by the macroeconomic condition's variables (economic growth, real GDP per capita, unemployment rate, inflation rate, and current account balance). The results indicate that net migration is significantly influenced by two of these variables: real GDP per capita and the unemployment rate. The negative correlation between net migration rate and real GDP per capita, on the other hand, indicates that a rise in Nigerian citizens' prosperity lowers the net migration rate. The creation of erroneous results as a result of using OLS as an analysis method is, however, the study's main flaw (Okikiola, 2022).

Between 1977 and 2021, Oyegoke & Amali (2022) used Ordinary Least sq\. (OLS) to examine the connection between labour immigration, remittances, and economic development in Nigeria. The results showed that, throughout the study period, labour migration and economic development had a substantial positive association. As an alternative source of income for Nigeria, the authors advise labour migration. Therefore, don't give up. In Nigeria, Ogu (2022) used the ARDL approach to study the effects of international migration, unemployment, and poverty from 1985 to 2020. The findings show that there is a positive and significant correlation between the migration proxy, which is international migration remittances, and unemployment as well as a negative and significant correlation between it and poverty in Nigeria. Using the Johansen cointegration test, Hakeem (2011) examined the connection between foreign migration and Nigeria's economic growth between 1970 and 2000. The study's conclusions showed that, over the period under review, there was no long-term, co-integrating relationship between economic development and international migration.

In order to examine the effects of increased migration on Nigeria's socioeconomic development between 2015 and 2022, Faith and Happy (2023) conducted a study utilizing content analysis. Economic growth during the study period was found to have a significant negative correlation with migration. Furthermore, in order to investigate the effects of net migration on agricultural output and foreign direct investment in Nigeria, Victoria & Izin (2023) used the Autoregressive Distributed Lag Model (ARDL) on quarterly data covering the years 2010 to 2021. In Nigeria, a negative and significant correlation was found between net migration and foreign direct investment, while a positive and significant relationship was found between net migration and agricultural output, according to the empirical results.

Furthermore, based on the studies that have been reviewed thus far, certain limitations have been noted in the methodology and control variable application used to investigate the impact of net migration on economic growth. But the Ordinary Least square Method, which can produce spurious regression if certain assumptions are broken, was used in the studies by Kotani (2012),

Darkwah & Verter (2014), Olarinde (2015), Abiola (2019), Okikiola (2022), Oyegoke & Amali (2022), and none of them took into account the impact of net migration on economic growth in Nigeria. Thus, new control variables were used in this study: foreign direct investment, investment, and educational spending as proxies for gross fixed capital and human capital, respectively. To get around the issue of spurious regression, the study also used Auto Regressive Distributive Lag model (ARDL) to investigate the possibility that net migration influences economic growth in Nigeria.

3.0 Methodology

This section discusses the research methodology used to accomplish the goal, model specification, variable descriptions and data sources, and estimation strategies.

3.1 Model Specification

To capture the objective of the study which is to examine the impact of net migration on economic growth of Nigeria? This study adopts the model of Abiola (2019) which is specified as follows:

$$GDP_t = \beta_0 + \beta_1 EMIG_t + \beta_2 REM_t + \beta_3 POP_t + \varepsilon_t \quad \ldots\ldots(1)$$

Where:

GDP = Gross Domestic Product
EMIG = Emigration
REM = Remittances
POP = Population
β_1, β_2 and β_3 = Coefficients
β_o = Intercept
ε_t = Random Error Term

The above model is modified to express the effect of net migration on economic growth in Nigeria. The modified model is express as follows:

$$LGDP_t = \beta_0 + \beta_1 NMGR_t + \beta_2 LED_t + \beta_3 LINV_t + \beta_4 LFDI_t + \varepsilon_t \quad \ldots\ldots(2)$$

Where:

LGDP = Log Growth Rate of Real Gross Domestic Product
NMGR = Net Migration
LED = Log Education Expenditure
LINV = Log Investment (proxy for gross fixed capital)
LFDI = Log Foreign Direct Investment
β_1, β_2, β_3 and β_4 = Coefficients
β_o = Intercept
ε_t = Random Error Term

3.2 Variable Description and Data Source

An annual time series spanning the years 1974 to 2021 was used for analysis in this study. An indicator of economic growth is the real Gross Domestic Product (GDP) growth rate. In Nigeria, net migration is the difference between the rates of immigration and emigration. The total amount spent by the government on primary, secondary, and post-secondary education serves as a proxy for educational spending. Gross fixed capital, also referred to as gross fixed capital

investment is proxied by investment, and foreign direct investment is measured by FDI stock. Additionally, spending on education, the control variable, contributes to Nigeria's economic growth. Since investment is a necessary component of production, it promotes economic expansion. In conclusion, foreign direct investment is a crucial factor in attaining economic expansion. According to Yaseen (2014), for example, FDI promotes economic growth by transferring resources from outside the nation to support the economy and raise investment levels.

The World Development Indicators (WDI, 2022) provided the data on GDP, net migration, foreign direct investment, and educational spending, while the United Nations Conference on Trade and Development (UNCTAD, 2022) provided the data on gross fixed capital.

3.3 Estimation technique

In order to investigate the relationship between net migration and economic growth in Nigeria, the study uses the bounds testing approach to co-integration based on Autoregressive Distributed Lag (ARDL) model framework, as proposed by Pesaran, Shin, & Smith (2001). When comparing the ARDL approach to other co-integration approaches, like those of Johansen and Juselius (1990) and Engel and Granger (1987), one of its key advantages is that it does not place restrictions on the variables' integration order, allowing them to all be I(1). Accordingly, if some of the variables are I(0) and others are I(1), the ARDL can be used (Abubakar & Kassim, 2016). Equation (1) presents the ARDL model, which includes the gross domestic product, net migration, and additional control variables as follows:

$$\begin{aligned}\Delta L(GDP)_t &= \alpha_0 + \alpha_1 LGDP_{t-1} + \alpha_2 (NMGR)_{t-1} + \alpha_3 L(ED)_{t-1} + \alpha_4 L(INV)_{t-1} \\ &+ \alpha_5 L(FDI)_{t-1} + \sum_{i=1}^{p} \beta_1 \Delta L(GDP)_{t-i} + \sum_{i=0}^{q} \beta_2 \Delta (NMGR)_{t-i} + \sum_{i=0}^{r} \beta_3 \Delta L(ED)_{t-i} + \sum_{i=0}^{s} \beta_4 \Delta L(INV)_{t-i} \\ &+ \sum_{i=0}^{t} \beta_5 \Delta L(FDI)_{t-i} + \mu_t\end{aligned} \quad (3)$$

The model's dependent variable is the gross domestic product (GDP), the core variable is net migration (NMGR), the other control variables are education expenditure (ED), investment (INV), and foreign direct investment (FDI), the optimal lag length is P, the error term is μt, and L represents the natural logarithms. With the exception of NMGR, every variable is logged. F-testing was also done to find out if the variables had a long-term relationship, or were co-integrated. The alternative hypothesis, H1: α1≠ α2≠ α3≠ α4≠ α5≠0, is tested against the null hypothesis, H0: α1= α2= α3= α4= α5=0. However, the decision rule states that the H0 is rejected (the variables are co-integrated) if the computed F-statistic is greater than the upper bound critical value. The H0 cannot be rejected if the F-statistic is less than the lower bound critical value, indicating that there is no co-integration among the variables. However, the inference's conclusion is ambiguous if the calculated statistic is inside the critical value band, that is, between the lower and upper bound (Abu, 2017). An error correction model (ECM) is estimated to obtain the variables' short-run coefficients. Equation (2) shows the ARDL specification for the ECM as follows:

$$\begin{aligned}\Delta L(GDP)_t &= \alpha_0 + \sum_{i=1}^{p} \beta_1 \Delta L(GDP)_{t-i} + \sum_{i=0}^{q} \beta_2 \Delta (NMGR)_{t-i} + \sum_{i=0}^{r} \beta_3 \Delta L(ED)_{t-i} \\ &+ \sum_{i=0}^{s} \beta_4 \Delta L(INV)_{t-i} + \sum_{i=0}^{t} \beta_5 \Delta L(FDI)_{t-i} + \delta ECT_{t-1} + \mu_t\end{aligned} \quad \text{..... (4)}$$

4.0 Analysis and discussion of results

4.1 Results of Unit Root Test

Since this study used annual time series data, it was necessary to determine the unit root (or stationarity) property of the series. The test is crucial because it prevents inaccurate results from occurring. To verify the unit root property of the variables in this regard, the Augmented Dicker-Fuller (ADF) and Philips-Perron (PP) statistics were employed. According to Table 1 stationarity test results, NMGR is stationary at level (i.e. e. I (0).

Table 1: Results of Unit Root Tests

	ADF		**PP**	
Variable	Level	First difference	Level	First difference
LGDP	-0.821	-5.764***	-1.045	-5.850***
NMGR	-4.292***	----------	-3.900**	----------
LED	-1.914	-3.610***	-1.359	-7.353***
LGFC	-2.339	-4.209***	-1.536	-4.205***
LFDI	-2.516	-12.901***	-1.411*	----------

Source: Researcher' computation using e- views 9. ***,**and * indicate statistical significance at 1%, 5%, and 10%, respectively. L denotes logarithm. Lag length are selected based on AIC.

Conversely, LGDP, LED, LINV, and LFDI remain unchanged only after calculating their initial difference (I (1)). This demonstrates that the series consist of both I(0) and I(1). The application of the ARDL method in this study is strongly justified by the mixed order of integration of the variables. The bounds testing approach is then used to perform the co-integration test after confirming that the variables are stationary.

4.2 Results of ARDL Co-integration Test

The bounds testing approach is then used to perform the cointegration test after confirming the stationary properties of the variables. Table 2 below displays the findings of the cointegration test conducted on the model that includes net migration and additional control variables.

Table 2: Results of ARDL Bound Tests

Dependent Variable		Function			F-Statistic		
LGDP		F(NMGR,LED,LGFC,LFDI)			4.107**		
Critical Values Bounds							
10%		5%		2.5%		1%	
I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
2.00	3.09	2.56	3.49	2.88	3.87	3.29	4.37

Source: Researcher's computation using Eviews 9.0 ** denotes statistical significance at 5%

The outcome indicates that there is a long-term equilibrium relationship between the log of GDP, NMGR, and other control variables because the computed F-statistic (4.107) is larger than the upper critical bounds value at 5%. The findings show that, along with other control variables, GDP and net migration have a co-integrating relationship from 1974 to 2021.

4.3 Results of the Estimated Long Run Coefficients

The Akaike Information Criterion (AIC) automatically selected the ideal lag-length (2,4,3,1,3) in order to estimate the relationship between the variables. The long-run outcomes are shown in Table 3 below:

Table 3: Results of Estimated Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistics	Prob.
LNMGR	-0.706***	0.163	-4.322	0.000
LED	-0.113	0.089	-1.263	0.220
LINV	0.449***	0.132	3.393	0.003
LFDI	-0.157	0.126	-1.247	0.226
C	26.466***	2.791	9.482	0.000
R^2 = 0.751				
F-Stat= 3.911				

Source: Researcher's computation using Eviews 9.0.Note: The ARDL model selected based in AIC is 2,4,3,1,3.

The findings show that, at the 1% significance level, net migration has a negative and substantial impact on economic growth. In particular, economic growth is reduced by 0.71% for every 1% increase in net migration. This result is consistent with Drinkwater et al.'s findings (2013) who stated that because motivated and educated individuals are typically inclined to migrate in search of opportunities, migration can drain away valuable talents. This is a reflection of the situation in Nigeria, where a large number of highly qualified professionals, including teachers, doctors, and engineers, leave the nation in search of better opportunities overseas. These educated professionals, whose involvement would have helped Nigeria develop, left the country and turned their knowledge and abilities toward helping other nations flourish. In a similar vein, the study supported the findings of Akanbi (2017), who discovered a negative correlation between migration and Nigeria's economic growth.

This result also supports the neoclassical theory of migration, which holds that migration is caused by factors such as wages and employment conditions that vary between nations as well as migration costs. According to the theory, intending migrants weigh the advantages and disadvantages of moving before deciding to do so; migration therefore happens if their expected return (ER) is positive. When considering the Nigerian context, the strong outflow of young unemployed people and skilled professionals seeking better opportunities in developed nations makes the negative correlation between net migration and economic growth not shocking. Nigerians are leaving the country in large numbers to seek opportunities abroad due to a number of factors, including corruption issues that have diminished human value, a harsh economic environment, rising unemployment, the complete breakdown of social amenities, particularly electricity, which has left many young people in gainful employment unemployed, and strict economic policies that favour a small elite at the expense of the vast majority. Because of this, these educated and talented Nigerians become a brain drain to their home countries even though they aid in the development of their new ones. Underdevelopment and slow economic growth are the results of this.

Over time, the coefficient of LED exhibits a negligible negative correlation with LGDP. During the study period, there is a 0.11% decrease in economic growth in Nigeria for every 1% increase in LED. The reason for the negative correlation between LED and LGDP, however, was that human resources are a country's most important source of wealth. As a result, while natural resources and capital are viewed as passive components of production, humans are the active agents who gather capital, utilize natural resources, and create the political, social, and economic structures necessary for long-term economic growth. However,

the reasons for the unfavourable correlation observed between economic growth and education spending in Nigeria during the review period include misplaced priorities, inadequate budgetary allocation to education, and a lack of political will to support education. Long-term, investment (LINV) has a significant and positive impact on Nigeria's economic growth at the 1% level. Nigeria's economic growth increases by 0.45% for every 1% increase in investment. This result is in line with what other researchers have discovered (refer to Ugochukwu & Chinyere, 2013; Shu'aib & Ndidi, 2015; Onyinye et al. Ikechi & Anayochukwu, 2014). The result of FDI indicate a negative and insignificant impact on Nigeria's economic growth. However, foreign direct investment is insignificant and negative because in the long run FDI can create a dependence on foreign capital, leading to a lack of domestic investment and entrepreneurship. It can also displace domestic industries, perpetuate environmental degradation and social injustice. The explanatory variables are jointly significant in predicting variation in GDP during the study period, as indicated by the F-statistic of 3.911 and its probability value of 0.002. With respect to economic growth, the included explanatory variables account for 75.1% of the total variation, as indicated by the computed value of R2 = 0.751. The remaining 24.9% of the variation in economic growth can be attributed to the influence of variables not included in the regression model.

4.4 Results of Estimated Short run Coefficients

After establishing long-term co-integration between the variables of interest, we next investigate the variables' short-term behaviour in the event of a long-term disequilibrium. Finally, we use the error correction mechanism to track the rate of adjustment towards the long-term equilibrium. The ECM gauges the system's rate of adjustment and displays how quickly equilibrium is restored. Table 4 presents the short run model's findings. The findings show a strong and favourable short-term correlation between NMGR and LGDP. A 1% rise in NMGR causes the LGDP to increase by 39%. The situation where trained and skilled Nigerians who travel overseas send money home in the form of remittances, which in turn contribute to economic growth, is depicted by the short-term positive effect of NMGR on LGDP.

Table 4: Results of the Estimated Short-Run Coefficients

Variable	Coefficient	Std. Error	t-Statistics	Prob.
D(LGDP(-1))	0.208	0.124	1.675	0.108
D(NMGR)	0.385***	0.122	3.147	0.005
D(NMGR(-1))	0.054	0.122	0.443	0.662
D(NMGR(-2))	-0.294	0.272	-1.080	0.292
D(NMGR(-3))	-1.766***	0.300	-5.876	0.000
D(LED)	0.062*	0.023	2.689	0.013
D(LED(-1))	0.113***	0.028	3.976	0.001
D(LED(-2))	0.107***	0.027	4.005	0.001
D(LINV)	0.108***	0.035	3.039	0.006
D(LFDI)	-0.028*	0.016	-1.723	0.099
D(LFDI(-1))	0.061***	0.019	3.148	0.005
D(LFDI(-2))	0.043*	0.016	2.640	0.015
ECM(-1)	-0.392***	0.071	-5.499	0.000

Source: Researcher's computation using Eviews 9.0 ***,**,* denotes statistical significance at 1%, 5%, and 10%, respectively.

There is a strong and positive short-term correlation between GDP and LED. This indicates that a 1% increase in LED corresponds to a 0.66% increase in Nigeria's economic growth. A one percent increase in LED corresponds to a 0 point11 percent increase in economic growth, according to the coefficient of LED lag one and lag two, which demonstrate a positive and significant relationship with LGDP. There is a substantial and positive correlation between investments (LINV) and LGDP. According to the findings, there is a 0 point 11 percent increase in LGDP for every 1% increase in investment (LINV). Likewise, a negative and statistically significant short-term correlation was discovered between LGDP and LFDI. This indicates that there is a corresponding 3% drop in LGDP for every 1% increase in LFDI. Additionally, at the one percent level, the coefficient of ECM is statistically significant and has a negative sign. This suggests that the ECM, which gauges how quickly LGDP adjusts to variations in LNPG, LED, LINV, and LFDI before returning to equilibrium, is approximately 39%. This indicates that within a year, 39% of the deviations from the long-term equilibrium would be corrected.

4.5 Results of Diagnostic Test

Several diagnostic tests were performed to assess the estimated model's reliability. The Ramsey RESET (functional form), Jarque-Bera normality, Breusch-Pegan hetroskedasticity, and Breusch-Godfrey serial correlation LM tests were performed in order to accomplish this task. Table 4.10 reports the diagnostic test results. The Breusch-Godfrey LM test results for the serial correlation test show that the series are not serially correlated at the five percent level. This result further demonstrated the independence of the error terms, indicating that an error term in one period is independent of an error term in another. As a result, we agree with the null hypothesis that the independent variables do not serially correlate.

Table 5: Results of Diagnostic Test

LM Test Statistic	Results
Serial Correlation: χ^2	0.813 [0.458]
Functional Form (Ramsey Test): F-Stat.	0.807 [0.379]
Normality (Jarque-Bera)	19.380[0.000]
Heteroscedasticity: χ^2	1.288 [0.285]

Source: Researcher's computation using Eviews 9.0 .P-values are in parenthesis

Because the probability value is 0.0000, the Jarque-Bera test result indicates that the series are not normally distributed. This entails accepting the alternative that the series are not normally distributed and rejecting the null hypothesis that the series are normally distributed. However, the central limit theorem states that one can disregard the normality issue if the sample size is greater than 30 (Bashir, 2018). A high p-value in the Breusch-Pagan-Godfrey heteroscedasticity test results indicates that the null hypothesis is accepted and that the residuals have a constant variance, a finding known as heteroscedasticity. The Ramsey test result indicates that the models' estimated parameters are stable.

4.6 Results of Stability Test

The cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMQ) tests were performed to determine whether the parameters of the model were stable. The parameters are deemed unstable if the CUSUMQ plots break in the lower and upper bounds. Since it is evident that the (CUSUM) and (CUSUMQ) do not fall on either of the 5% critical lines, the plots in figure 1 and 2 are within the boundaries. This demonstrates that the study's estimated parameters remain stable over the time period examined.

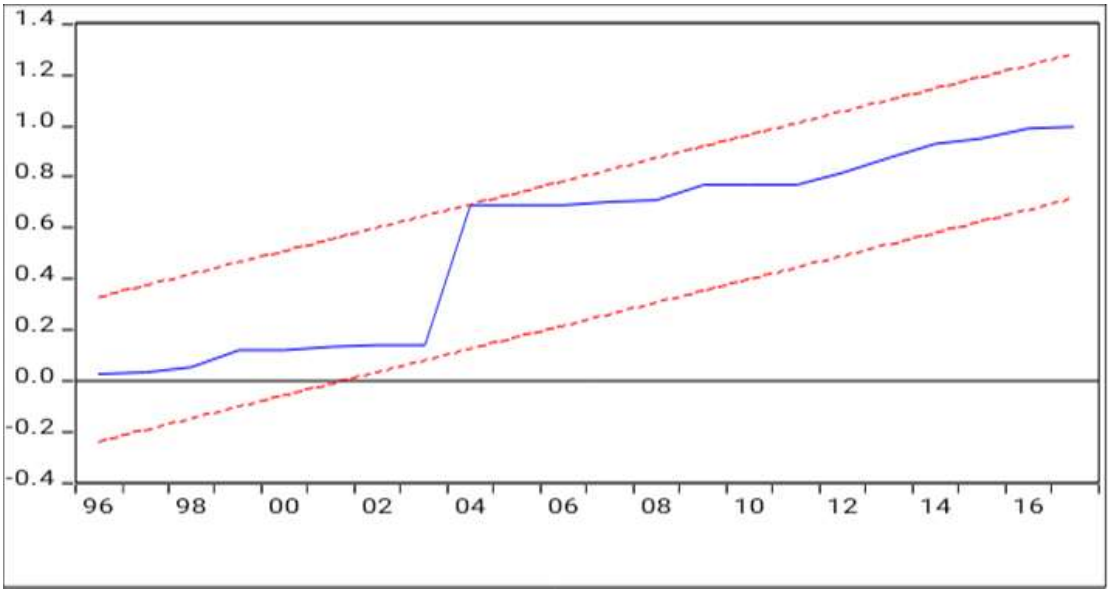

Figure 1: Cumulative Sum of Recursive Residuals Plots

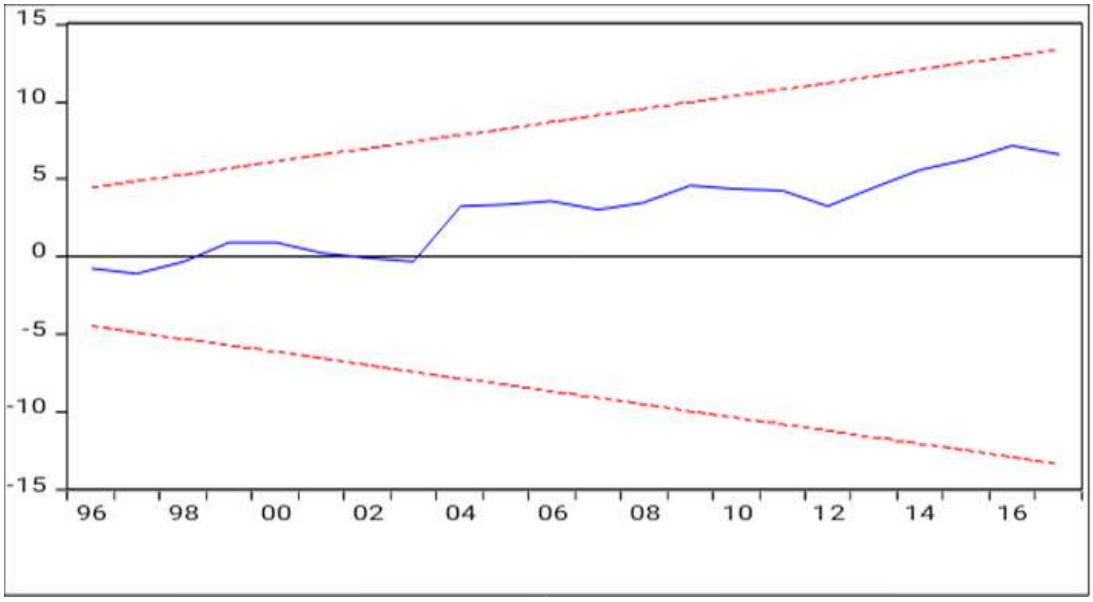

Figure 2: Cumulative Sum of Square Recursive Residuals Plots

5.0 Conclusion and Policy Recommendations

This study examines the impact of net migration on Nigeria's economic growth from 1974 to 2021 using the ARDL-bounds testing technique. Economic growth and net migration, along with other control variables (LED, LINV, and LFDI), have a long-term cointegrating relationship, according to the ARDL bound tests of co-integration. Furthermore, a noteworthy inverse correlation was observed between net migration and economic growth within the studied period. However, the analysis's short-term relationship between net migration and economic growth shows that the variables have a positive and substantial relationship. 39 percent of the equilibrium deviations were corrected in less than a year, according to the error correction mechanism's rate of adjustment.

According to the results, net migration which is primarily negative and refers to people leaving the country is also having a

detrimental effect on the Nigerian economy. As previously said, the individuals who depart from Nigeria include highly skilled professionals and those who achieve success in a variety of fields, depriving Nigeria of their productivity, which could have fostered economic expansion. These results suggest that while educated and skilled workers are leaving the nation, low-skilled and unskilled workers with low levels of productivity remain and slow down economic growth. Additionally, the study suggests the following in light of its findings: The push factors in Nigeria, such as the inadequate wage and incentive structure, ought to be addressed by offering good and efficient remuneration systems to workers in all professions. To further deter individuals from leaving Nigeria, pull factors like a high standard of living abroad ought to be offered here in Nigeria. This can be accomplished through the development of infrastructure, an open hiring procedure, and an incentive-based compensation plan that recognizes and rewards effort and success. Finally, in order to boost the country's economy, the Nigerian government should create an atmosphere that is favourable and offer financial opportunities to entice Nigerians living overseas to return home and make investments.

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