Impact of migration and remittance on economic growth in Nigeria: dynamic ordinary least square model

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Abstract

The study examined the migration and remittance on economic growth in Nigeria. The specific objectives were to: ascertain the impact of migration on economic growth in Nigeria and determine the impact of remittance on economic growth in Nigeria. The research design was ex post-facto method. The variables consist of real Gross domestic Product (RGDP), net migration rate (NMG), international migration stock (IMG), diaspora remittance (REM), trade openness (TRADE) and exchange rate (EXCH) for the period of 1990 to 2024 The method of data analysis was divided into three phases namely: pre-estimation, estimation and post-estimation. The method of data analysis was Dynamic ordinary least square (DOLS). The empirical results showed that international migration has 10 percent negative and insignificant impact on economic growth (t-statistics; -0.3335; *p*-value; 0.7450 > Sig-value: 0.005) and diaspora remittance has positive and significant impact on economic growth (t-statistics; 7.7346; *p*-value; 0.0000 < Sig-value: 0.005). This study concludes that migration has 10 percentage negative and insignificant impact on economic growth in Nigeria while remittance has 60 percentage positive and significant impact on economic growth in Nigeria. The study concluded that Nigeria government should adopt strategies to stemming international migration by addressing push factors of unemployment, low salaries, limited chances of self-advancement, poor conditions of service, poverty and pull factors such as job opportunities, safety and security, wealth prospects, food security and conflicts, better conditions of service and higher standards of living since they are the root causes of international migration.

Keywords: Migration, Remittance, Economic growth

1.1 Background of the Study

In recent years, remittances have been one of the largest sources of international capital inflows to developing economies as they account for approximately 27 percent of the gross domestic product (Ikwuagwu, Onyele & Onyele, 2024) [15]. The persistent increase in the flow of remittances to developing nations can be attributed to the improved immigration between the developed and the developing countries as well as the technological advancement that has enhanced the international transfer of payment between individuals at a low cost (Idio, Rogers & Akadi, 2022) [14]. According to the World Bank, foreign remittances are personal transfers or compensation of workers. Imouokhome, (2023) [16] noted that remittances constitute a prominent source of savings and capital for investments in health, education, and entrepreneurship thereby enhancing productivity and employment, which culminate into economic growth and poverty alleviation. Remittances can also aid the enhancement of financial sector growth on the notion that some of the remittances are converted and deposited with banks thus making the funds available for lending to the private sector and this, in turn, facilitate economic growth (Abiola & Ajibola, 2022) [1]. Remittances provide support for the welfare of the relatives left behind thus contributing to the eradication of poverty in the recipient country.

Migration entails the movement of people from one location to another in a country or from one country to another for the purpose of establishing a new residence (IOM, 2011; ACP Observatory on Migration, 2011). According to Ugwoegbu, Okoro, Obijiaku (2024) [25] migration can be traced to the existence of the first set of humans on earth. Migration has taken various patterns in the course of slave trade, colonization, urbanization, industrialization and globalization. Movement of persons (migrants) from one place to another has been a trend adopted by various individuals. Although the definition of migration varies from different perspectives, there is a consensus that it involves the movement of people across a recognized political boundary to establish permanent or semi-permanent residence. The period of residence also varies, but most experts believe that six months of residence in a new location is enough to categorize one as a migrant. The number of migrants from sub-Saharan Africa, mainly from Nigeria, has increased over time. In addition to being a significant potential economic force through remittances, Nigerians living abroad play a significant role in the economy as skilled repatriates (Duru, 2021) [11].

Furthermore, migration is a response to a crisis with economic, political, and socio-cultural components by individuals, either individually or in groups, in order to survive the circumstance. The world's advanced economies are the primary destinations for foreign migrants. According to Nwokoro, (2024) [21],

colonial relationships between Europeans and Africans shaped global migratory trends today. Furthermore, high unemployment, a lack of social amenities, poverty, economic crises, political instability, insecurity, low pay, and other unfavourable factors cause for external migration in the majority of the universe's economies. Because the Nigerian labour market has failed to provide work for young people, they have no choice but to migrate. External migration has economic, socio-cultural, and political ramifications for both developing and developed economies.

Statistical evidence from the World Migration Report of 2020 revealed that the number of international migrants worldwide was 272 million in 2019 (McAuliffe & Khadria, 2019). This represents 3.5 per cent of the population of the globe. In addition, in terms of gender, 52 per cent and 48 per cent of international migrants were male and female respectively. Also, the number of international migrants in the working-age of 20 to 64 years was 74 per cent. Furthermore, India was the leading country of origin of international migrants with 17.5 million migrants. Mexico and China are in second and third positions with 11.8 million and 10.7 million international migrants respectively.

However, United States remained the leading country of destination for international migrants with 50.7 million international migrants. Again, the IOM opined that since 2014, more than 600 000 migrants from Africa travelled to Italy through the dangerous route of the Central Mediterranean (Nweke & Enyosiobi, 2023) [20]. However, almost 120 000 African migrants reached Italy in 2017 alone. No wonder, Ranjana (2025) observed that "It has become a serious issue of the twenty-first century because of rapid globalization, industrialization, urbanization and related migration patterns which are forcing people to move from one place to another in search of livelihood options and employment opportunities''. However, Connell and Conway, (2020) [8] observed that migration has been identified as a survival strategy utilized by the poor, especially the rural folks as a catalyst in the transformation process of not only the destiny of individual migrants, but also, the conditions of family members left behind, local communities, and the wider regions through remittances. However, studies on impact of international migration and diaspora remittances on economic growth in Nigeria are limited, re-evaluating these effects became imperative and is crucial for policymaking and implementation.

1.2 Statement of the problem

The Nigerian economy is opened to the global space and to several sources of financial flows, which include export revenue, capital flows, remittances, official development assistance (foreign aid), loans, grants, foreign direct investment and so on. Among the developing countries, Nigeria receives reasonable amount of remittances from her indigenes in diaspora, she received $17.57 billion in direct diaspora remittances between January and November 2019 (Mbadiwe & Egesimba, 2023) [18]. This represents a 210% increase from $5.66 billion in 2010 to $17.57 billion as at November 2019. Despite the large inflows of remittances into Nigeria, economic growth is still sluggish. Nigeria is the leading recipient of remittances in Africa, with implications that more Nigerians are resident outside the country compared to other African countries. This is an indication of the underdeveloped state of the economy, the prevalent lack of opportunities and underemployment (Loto & Alao 2016) [17].

Migration in most cases does not only empower the migrant, but is also known for its relationship with the geographical and occupational mobility of labour, as the probability of moving within occupations is often higher with migration (Nweke and Enyosiobi, 2023) [20]. The total number of Nigerian-trained doctors in the United Kingdom (UK) as at late 2022 stood at 10,387 (Owotemu, Ifechi-Fred & Faleti, 2024) [24]. The accreditation of the 91 doctors came amidst cries by the Nigerian Medical Association against the brain drain bedeviling the health sector. Apart from doctors, other categories of health workers are also migrating. According to reports, the statistics also showed that between January 1, 2022, and September 30, 2022, about 1,307 Nigerian-trained doctors were licensed in the UK as Nigeria continues to battle one of the worst situations of brain drain in its history. Nigeria currently has the third highest number of foreign doctors working in the UK after India and Pakistan (Owotemu, Ifechi-Fred & Faleti, 2024) [24]. Furthermore, most of these immigrants have lost their rights to health care, movement, employment, education, among others as a result of improper documentation. Again, some migrants may resort to deviant lifestyles to make ends meet. Adeseye, (2021) [4] stated that armed robbery, increasing crime rate, prostitution and pickpocketing are among these inappropriate lifestyles. Some of the jobs that result from these lifestyles are considered “3D jobs”. These are difficult, dirty and dangerous jobs. Because of these challenges, the economic, political and social reasons for migration are in most cases defeated.

Despite huge remittances received by the country, the problems of poverty, unemployment and inequality still persist and indication that Nigeria may not have efficiently utilized the gain from brain drain in terms of remittances (Okorie, Nwabufo & Oriaku, 2019) [22]. Moreover, the bad economic situation of Nigerian citizens made most of the recipients of remittances to consume instead of investing them. Researchers have found both positive and negative impacts of remittances on economic growth (Adeagbo & Ayansola, 2024: Adenutsi, 2020) [2, 3] Also, there are studies that show that no impact of remittances on economic growth (Anetor, 2019, Ari, 2020; Bashir, 2020) [5-7]. So, there is no conclusive answer regarding the impact of remittances on economic growth as the situation of contrasting findings possibly results from multiple channels of remittances. Owing these backdrops, the study aimed to identify impact of migration and remittance on economic growth in Nigeria.

1.3 Objectives of the Study

The main objective of the study is to examine the migration and remittance on economic growth in Nigeria. The specific objectives are to:

- Ascertain the impact of migration on economic growth in Nigeria.
- Determine the impact of remittance on economic growth in Nigeria.

1.4 Research questions

This study seeks to provide answers to the following research questions.

- What is the extent to which migration impact on economic growth in Nigeria?
- What is the extent to which remittance on economic growth in Nigeria?

1.5 Significance of the study

This study would be beneficial and relevant to migrants, social workers, families, and non-governmental organizations and researchers.

Migrants: The outcome of this study would be useful to They will receive crucial information on how the funds supplied may be applied to more pressing needs and investments, which could produce more significant growth outcomes in the home and economic realms.

Government: The study's findings would also provide helpful information for various government ministries and organizations tasked with overseeing the nation's development requirements as well as its migration policies. This will assist in resolving the existing issue where data on foreign migration and the effects of remittances on migrant families cannot be easily recognized and measured in the nation.

Policymakers: The study will also be helpful for policymakers since it will provide them with knowledge on how to pick growth plans carefully. The data would particularly affect the creation and execution of programs and policies connected to remittances and their direct and indirect support of economic growth.

Researchers: The outcome of this study would be useful to researchers by adding knowledge to the existing literature and provides a basis for future research in the area of migration, remittance and economic growth in Nigeria.

2.1 Conceptual literature

2.1.1 Migration

The International Organization for migration (IOM) states that migration can be described as: A process of relocating, either over an international boundary or inside a State. It is a population movement that comprises any type of human mobility, regardless of its length, composition, or causes; it includes migration of refugees, displaced people, uprooted people, and economic migrants (IOM, 2024).

Voluntary migration is based on the initiative and the free will of the person and is influenced by a combination of factors: economic, political and social: either in the migrants` country of origin (determinant factors or "push factors") or in the country of destination (attraction factors or "pull factors")."Push-pull factors" are the reasons that push or attract people to a particular place. "Push" factors are the negative aspects of the country of origin, often decisive in people`s choice to emigrate and the "pull" factors are the positive aspects of a different country that encourages people to emigrate in search of a better life. For example, the government of Armenia periodically gives incentives to people who will migrate to live in villages close to the border with Azerbaijan. This is an implementation of a push strategy, and the reason people don't want to live near the border is security concerns given tensions and hostility because of Azerbaijan (Imouokhome, 2023) [16].

Although the push-pull factors are apparently diametrically opposed, both are sides of the same coin, being equally important. Although specific to forced migration, any other harmful factor can be considered a "push factor" or determinant/trigger factor, such examples being: poor quality of life, lack of jobs, excessive pollution, hunger, drought or natural disasters, which are mostly seen in Africa and Nigeria in particular. Such conditions represent decisive reasons for voluntary migration, the population preferring to migrate in order to prevent financially unfavorable situations or even emotional and physical suffering (Ewubare & Odu, 2024) [12].

2.1.2 Remittance

Remittance has been defined by many scholars from different disciplines and organizations. According to Abiola and Ajibola, (2022) [1], remittance is defined as money sent home by migrants working abroad to their home countries. Similarly, remittance has been defined as a portion of migrant workers' earnings sent to their countries of origin and this could be in cash or gifts (Nwokoro, 2024; Nweke & Enyosiobi, 2023) [21, 20]. Moreover, (IMF, 2019) maintains that remittance is limited to money sent by migrant workers who have been staying in a foreign country for more than a year to his/her household in his/her country of origin and this does not include migrants that are self-employed.

Similarly, Mbadiwe and Egesimba, (2023) [18] argues that remittances are financial and non-financial materials that migrants receive while working overseas and sent back to their households in their countries of origin. Owotemu, Ifechi-Fred and Faleti, (2024) [24] also defines remittances as migrants' funds' transfers, which are resources that a migrant conveys into or takes out of a country. Consequently, International Organization for Migration (2006) largely defines remittances as the monetary flows connected to migration, that is, cash transfers by migrants or immigrants living abroad to a relation in their home countries. (International Labour Organization, 2020) also defines remittance as part of migrant workers' income remitted back from their employment countries to their countries of origin.

2.1.3 Economic growth

Economic growth is the increase in the value of goods and services produced by a country over a period and Real Gross Domestic Product (RGDP) is used as a proxy for economic growth. Real gross domestic product is an inflation-adjusted measure which reflects the value of all goods and services produced by an economy in a given year, usually expressed in base-year prices, and is often graded as constant-price or

inflation-corrected GDP. Unlike nominal GDP, real GDP can account for changes in price level and provide a more accurate figure of economic growth (Giuliano & Ruiz-Arranz, 2025) [13]. According to Meyer and Shera (2017), economic growth can be defined as the sustained increase in a country's productive capacity, and per capita national output or net national product over a while. These increases are the basic causes of economic growth. Economic growth can be proxied, using different economic indicators, ranging from Gross National Product (GNP), Gross Domestic Product (GDP), Human Development Index, and Per Capita Income. But in this study, economic growth was measured with Gross Domestic Product (GDP), and Human Development Index.

2.1.4 Linkages between remittances and economic growth

The literature identifies various channels through which remittances have an impact on economic growth. Remittances promote economic growth by increasing household income (Morad & Adel, 2019) [19]. Increasing income creates the opportunity to boost consumer spending, accumulation of assets, promotion of self-employment, and investment in small business. Moreover, emigration and remittances contribute to human capital accumulation (Olayungbo & Quadri, 2019) [23]. A positive impact of emigration on growth is more likely in developed countries, which usually have a higher ability to transfer knowledge and skills when emigrants return to the country of origin, or to divert remittances in order to create new opportunities in the private sector. A negative impact of emigration results if the developing countries of origin suffer from brain drain and start to depend on remittances (Samuel & Pierre, 2020). There are some studies that analyze whether the level (measured as remittances-to-GDP ratio) and growth of remittances are related to a higher level of economic growth (Bashir, 2020) [7].

Remittances promote additional expenditures in the country, and this influences the opportunity to invest more (Connell & Conway, 2020) [8]. Remittances are the source of foreign currency, encouraging higher savings and economic growth (Abiola & Ajibola, (2022) [1]. If remittances create a higher demand than the country is able to meet, they also increase imports, which create a variety of goods and services. In this case, it worsens the prosperity of households that do not receive remittances (Mbadiwe & Egesimba, 2023) [18]. The impact of remittances on economic growth is relatively sensitive to country-specific conditions, through which the effects of remittances are differentiated in size and possibly in nature. The impact of remittances depends highly on public policy, controlling the flow of remittances and creating a favourable environment for the use of remittances in productive investment.

2.1.5 Linkage between international migration and economic growth

Migration is a decision that impacts the welfare of the household, the home community and in the end the whole economy in various ways. The welfare implications of migration on the origin country are most often, though not always, sizeable and positive. The main channels through which migration alleviates poverty are increased incomes from remittances, ability to smooth consumption, access to finance for starting a new business, as well as taping on to the knowledge and resources provided by the international community of the migrant diaspora. Besides pure monetary gains, migration and remittances allow for higher investment in health care and education (Ugwoegbu, Okoro & Obijiaku, 2024) [25].

Foreign aids and diaspora remittances are key relief to poor Africans. While foreign aides have stagnated in recent years, remittances become the financial lifeline which unlike the former, places money directly in the hands of those in need. In 2012, Africans received $32 billion from their sons and daughters abroad. The 17 million officially documented Nigerians in the diaspora funneled a whopping sum of $21 billion to the country (the fifth world's largest beneficiary of such funds following India, China, Philippines and Mexico) as against the $23 billion they sent in 2011. With growing diaspora communities in Europe, America and Asia, the figure is growing tremendously (Guardian Newspaper 7th Oct; 2024).

2.1.6 Linkage between diaspora remittance and economic growth

Remittances have been found to have an income stabilizing effect at both the macroeconomic level (World Bank 2006) and at the household level. Historically, remittances have attended to rise in times of economic downturns, financial crises, and natural disasters because migrants living abroad send more money to help their families back home. Also, migrant remittances increase domestic savings as well as improve financial intermediation, which can improve growth prospects. Evidence from Philippines, Mexico, Nigeria and other countries suggest that remittances promote self-employment and also increase small business investment in migrant-sending country. (Idio, Rogers & Akadi. 2022) [14]. The diaspora equally serves as a link between the sending and receiving communities, expanding the opportunities to access international financing, and facilitates networking. The diaspora also contributes through philanthropic remittances and the development project such as schools, health facilities and community infrastructure. Access to information through the diaspora and skills learned by returning migrants can improve technology, management and institutions in the sending country (Olayungbo & Quadri, 2019) [23]. Emigrants may also be an important supply of foreign investment as their knowledge of their country institutions (and perhaps a greater ability to maneuver within the home country regulatory framework) may mean that they incur lower investment cost and/or higher returns, compared to other international investors (Ugwoegbu, Okoro & Obijiaku, 2024) [25].

2.2 Theoretical literature

2.2.1 Developmental pessimistic view

In the late 1960s a new viewpoint regarding remittances, migration and development emerged; the pessimistic view. The theory arose from a shift in social science towards more

structural views (de Haas, 2007) [9]. Furthermore, empirical studies from that time showed results that gave support for the pessimistic view (Taylor, 1999). This theory suggests that the net effect of migration and remittances does not foster sustainable development (Adenutsi, 2020) [3]. The brain drain is one of the aspects considered, where emigration of the educated leads to a loss that is not offset by the benefits associated with remittances. The developing countries are drained of their human capital resources when educated inhabitants emigrate.

Moreover, this theory implies that the poorest do not have enough money to emigrate because of the costs associated with emigration, such as traveling costs (de Haas, 2007) [9]. This would mean that remittances could increase the income gap in developing countries even further. Also, it is argued that remittances would not be spent on developing enhancing investment, as the optimistic view would imply. If the aim, when remitting, is to invest in the receiving country it means that the recipients makes the investment decisions on behalf of the sender. The recipient might not be as skilled as domestic financial intermediaries; therefore, the investment is less likely to be successful. Money would rather be spent on consumption or non-productive investments such as real estate and rarely in productive enterprises (Adenutsi, 2020) [3].

2.2.2. Developmental optimistic view

The Developmental Optimistic view dominated during the 1950s and 1960s. According to this view migration leads to "North-South" transfers of investment capital and means an acceleration of the labour exporting countries exposure to "liberal, rational and democratic ideas, modern knowledge and education" (Adenutsi, 2020) [3]. The general assumption the followers of this theory make is that flows of remittances as well as experience, skills and knowledge that migrants acquire abroad will enhance development in the recipient countries (de Haas, 2007) [9]. Especially the take-off in economic sense is expected to thrive because migrants would be expected to invest great capital into enterprises in the countries of origin.

The Neoclassical economists also put migration into a positive light. In the Neoclassical model of balanced growth, migration is a process contributing to optimal allocation of production factors, which benefit all equally, both the countries of origin and the recipients. In an unconstrained market environment, free labour mobility will lead to scarcity of labour, and hence the marginal productivity of labour will increase and lead to higher wages in the migrant sending countries. Moreover, this would mean that the marginal productivity of capital would go down and capital flows are thereby expected to move in the opposite direction as migration. The core of this theory is that the developmental role of migration depends strictly on the process of factor price equalization. However, De-Haas (2007) [9] points out that the neoclassical migration theory does not include remittances in their analysis.

2.3 Empirical literature

Several studies abound on the relationship between migration, remittance and economic growth.

Nwokoro, (2024) [21] aimed to empirically examine the effect of globalization and migration on Nigeria's economic growth. The specific objectives of the study were to determine the influence of foreign direct investment, trade openness, foreign exchange rate, remittances on gross domestic product covered the period 33 years (1990 – 2022). The ARDL (autoregressive distributed lag) model was employed for the study and a long-run relationship was established. Findings revealed that remittance had a significantly positive effect on Nigeria's economic growth in the long run. The finding of the error correction mechanism revealed a speed of adjustment to equilibrium of 31.1%. The study suggested that the government, as a key player, should take immediate action to formulate policies that bolster and optimize the advantages of remittance inflows. This is crucial as remittances have been found to positively and significantly affect economic growth in the short and long run. These measures may encompass reducing transaction expenses, improving financial literacy among recipients, and encouraging investments to amplify the developmental effects of remittances.

Ewubare and Odu, (2024) [12] investigated the effect of migration on economic development in Nigeria. Specifically, the study sought to examine impact of net migration rate (NMG), international migration stock (IMG) and rural-urban migration (RBM) on economic development from 1981 to 2021. Descriptive statistics, unit root test, bound cointegration test, as well as Autoregressive distributed lag (ARDL) were employed to analyze the data. The study reveals that both in the short run and long run, net migration (NMG) had a negatively insignificant impact on economic development; in the short run and long run international migrant stock (IMG) had a positive and insignificant impact on economic development. Also, in the short run, rural-urban migration (RBM) had a positive and insignificant impact on economic development in Nigeria while it had a negative and insignificant impact on economic development over the data period. The study recommends that Nigerian government should handle the migration crisis promptly, contribute to job creation, and improve the environment to discourage people from moving, as well as encourage its skilled workforce overseas to come home to aid in national development.

Ikwuakwu, Onyele, Onyele, (2024) [15] investigated the impact of foreign remittances on economic growth of Nigeria. Specifically, the study sought to investigate the effect of foreign direct investment (FDI); exchange rate (EXC), inflation (INF), remittances (REM), gross domestic saving (GDS), and consumption (CONS) on nominal gross domestic product (GDP) using annual time series data from 1981–2019. The data analytical technique was Autoregressive Distributed Lag (ARDL) model. The study also revealed that FDI and gross fixed capital formation had a positive and significant effect on economic growth while inflation and exchange rate had a negative and significant effect on economic growth in the long-run. In the short-run, amidst negative and significant effect of remittances, FDI had a positive and significant effect on economic growth while gross fixed capital formation and inflation were found positive but insignificant and exchange

rate having a negative and significant effect on economic growth of Nigeria. The study recommended that policy makers should create investment vehicles like diaspora bonds among others, to encourage the citizens of Nigeria working abroad to lend their hands to national development.

Ugwoegbu, Okoro and Obijiaku, (2024) [25] explored the immigration and economic growth of Nigeria: A study of Awka youths, Anambra State. The specific objectives were to examine the relationship between political instability and human development in Nigeria. Also, to ascertain the relationship between asylum seeking and good governance in Nigeria. The study used descriptive survey research design. The target population are 100 youths in Awka South Local Government Area of Anambra State, Nigeria, who were given a structured questionnaire to fill. The method of data analysis was Pearson Product Moment Correlation Coefficient. The empirical literature reveled that there is a statistically significant negative relationship between political instability and human development in Nigeria, with r = -0.648, n = 100 and p value of 0.006 (p<0.05). Hypothesis two showed that there is a statistically significant negative relationship between asylum seeking and good governance in Nigeria, with r = -0.812 n = 100 and p value of 0.000 (p<0.05). The study recommended that the Nigerian government needs to prioritize stabilizing the political environment to foster human development and well-being of its citizens.

Mbadiwe and Egesimba, (2023) [18] examined the impact of remittances on economic Growth in Nigeria. The specific objectives of the study were to determine impact of remittances (REM) and overseas development assistance (ODA), gross fixed capital formation (GFCF) and exchange rate (EXR) on Economic growth (RGDP) over the period 1986 – 2021. The method of the data analysis was error correction model (ECM). The ECM result reveals that the errors from the short run to the long run are corrected at the adjustment speed of 46.10% yearly. REM and GFCF have a positive and significant impact on RGDP in the long run while EXR have a negative and significant impact on RGDP in the long run; ODA has no significant impact on growth. Also, all the variables do not confirm the short run impact on growth. The study however concluded that remittances significantly enhance economic growth in Nigeria within the period of study. The study recommends among others that the government increase remittance inflows into the country by developing the financial sector to reduce the cost associated with the inflow of remittances and reduction of tax rate for transactions so people can send money through appropriate channels to aid government collect actual data on remittance flows.

Imouokhome, (2023) [16] examined the impact of migration and remittances on economic growth in Nigeria. The specific objectives of the study were to determine impact of remittance, trade openness, foreign direct investment, government expenditure, capital formation on economic growth. The method of data analysis was Autoregressive distributive Lag model. The short run result was presented was evident that remittance has a positive and statistically impact on economic growth under the period of study. The long run estimates reveal that government spending has a positive and significant impact on economic growth. Moreover, it was deduced from the regression result conducted that trade openness and foreign direct investment has a positive impact on economic growth under the period of study. There was found a uni direction between the two variables. It is revealed that remittances do not cause changes in economic growth under the period of study. It was therefore recommended that the Nigerian government should budget and expend more resources on productive sector of the economy especially on infrastructure which would attract the right Foreign Direct Investment (FDI) into the country and boost more growth.

Abiola and Ajibola, (2022) [1] investigated the contributions of foreign remittances on economic growth in Nigeria. The specific objectives of the study were to identify the effect of migrant's remittance, workers remittance, gross fixed capital formation, foreign aids, trade openness on economics growth from 1980 to 2016. The method of data analysis was Vector error correction modelling (VECM) technique. The two components of remittances performed differently. While the Migrants remittance component exhibits a long run positive, statistically significant relationship with economic growth, the other component i.e. Workers Remittance has a negative statistically significant impact in the long run, short run relationship was also established among the variables as the ECM term was negative and statistically significant. The results showed a unidirectional causality from GDP per capita to Migrants remittances while no causality was found between workers' remittances and gross domestic product per capita. The study therefore recommends the need to strategically harness the contribution of workers' remittances by ensuring that the money is spent on locally produced goods instead of imported goods so as to ensure a positive relationship with economic growth in Nigeria. The study hereby concludes that remittance is a major driver of economic growth in Nigeria.

Duru, (2021) [11] examined the leading causes and consequences of international migration in Nigeria. A survey research design was utilized for the study. The data was collected through a structured questionnaire. The opinions of 100 respondents selected through the purposive sampling technique. The method of data analysis was descriptive statistics. The findings revealed that the principal causes of international migration in Nigeria were job opportunities, unemployment, wealth prospects, safety and security, better conditions of service, low salaries and higher standards of living. Furthermore, the findings showed that the foremost positive and negative effects of international migration in Nigeria were integrated development, increase in remittances, cheap and surplus labour, urban services and social infrastructure under stress, stricter immigration norms, multi-ethnic society and increased tolerance, Xenophobia, close gaps in skills and cultural dilution. These effects were economic, social and political. The study recommends that: the strategies of the government for stemming international migration should address push factors of unemployment, safety and security and low salaries and pull factors such as job opportunities, wealth prospects, better conditions of service and higher standards of living since they are the root causes of international migration.

2.4 Gap in literature

There exists research gap between this study and past researches. The research gap covers subject gap, gap on geographical location of the study, gap on the variables and contents of the study, gap on literature and gap on methodology.

Subject gap: The subject matter of this work and some reviewed empirical studies has some differences. There are limited studies on impact of migration and remittance on economic growth in Nigeria over the period of 1990 - 2024. The study is geared to bridge the time gap in literature.

Gap on geographical location of the study: This work covers international migration and diaspora remittance in Nigeria. None of the past studies used combination of international migration and diaspora remittance as mentioned and most of the past studies were done outside Nigeria.

Gap on the variables and contents of the study: The variables used in this study includes proxies for migration and remittance namely: international migration stock, net migration rate, diaspora remittance, trade openness and exchange rate (for independent variable) while the following are proxy for economic growth namely: real gross domestic product (RGDP) (for dependent variable).

Gap on literature: For the fact that the dependent and independent variables in this work differs with what were covered in past studies, the literature reviewed were never the same; hence there are differences on the conceptual and theoretical reviews. This study will bridge the gap by providing clear explanation as regards to cause-effect relationship among international migration, diaspora remittance and economic growth in Nigeria.

Gap on methodology: The data analytical techniques used in this work in some ways differ from what was employed from past researches. The data analytical technique of the study was dynamic modified least square method. The statistical technique was chosen because of its basic properties of best Linear, unbiased and efficient (BLUE) estimators. It is best for impact analysis.

3.1 Methodology

The research design was ex post-facto method. The variables consist of real Gross domestic Product (RGDP), net migration rate (NMG), international migration stock (IMG), diaspora remittance (REM), trade openness (TRADE) and exchange rate (EXCH) for the period of 1990 to 2024 as defined in our model specification. All the variables were sourced from Central Bank of Nigeria's (CBN) statistical bulletin for various years. The econometric software for the study was e-view version 9 because it is user- friendly software. The method of data analysis was divided into three phases namely: pre-estimation, estimation and post-estimation. The pre-estimation statistics includes descriptive statistics, Correlation Matrix of the Variables, Augmented Dickey-Fuller Unit Root test statistic, Johansen Co-integration test. The estimation technique includes Dynamic ordinary least square (DOLS) while post-estimation technique involves Histogram Normality Test.

3.2 Model specification for the study

RGDP = f (NMG, IMG, REM, TRADE, EXCH) ……..……. (3.1)

Where, RGDP is real Gross Domestic Product, NMG is net migration rate, IMG is international migration stock, REM is diaspora remittance, TRADE is trade openness and EXCH is exchange rate. In a linear function, it is represented as follows:

$$RGDP = \beta_0 - \beta_1 NMGt - \beta_2 IMGt + \beta_3 REMt + \beta_4 TRADEt - \beta_5 EXCH + \mu t \ldots\ldots\ldots\ldots \quad (3.2)$$

Where: $\beta 0$ = Constant term, β_1 to β_6 = Regression coefficient, μt = Error Term and t is the period. To reduce the outliers among the variables, all variables will be expressed in logarithmic form.

$$LogRGDP = \beta_0 - \beta_1 LogNMGt - \beta_2 LogIMGt\ \beta_3 - LogREMt + \beta_4 LogTRADEt - \beta_5 LogEXCH + \mu t \ldots..\ldots\ldots \quad (3.3)$$

Where: $\beta 0$ = Constant term, β_1 to β_6 = Regression coefficient, Ut = Error Term and t is the period.

4.1 Descriptive statistics of the variables

Table 1

	RGDP	NMG	IMG	REM	TRADE	EXCHR
Mean	1065879.	1920615.	66051.72	141248.1	2226109.	67.95102
Median	1166001.	2456782.	5860.100	137900.0	1188970.	23.86438
Maximum	2133114.	4890270.	206321.2	369369.0	6500024.	157.4987
Minimum	47051.10	196788.4	131.6000	13030.00	7502.500	8.038285
Std. Dev.	752808.8	1325467.	86327.28	104878.9	2513169.	57.10695
Skewness	0.034863	0.252761	0.764380	0.576732	0.647425	0.392198
Kurtosis	1.393622	2.030851	1.696195	2.445256	1.687051	1.377838
Jarque-Bera	3.770246	1.742419	5.887311	2.389074	4.959023	4.734753
Probability	0.151810	0.418445	0.052673	0.302844	0.083784	0.093726
Sum	37305768	67221512	2311810.	4943683.	77913825	2378.286
Sum Sq. Dev.	1.93E+13	5.97E+13	2.53E+11	3.74E+11	2.15E+14	110880.9
Observations	35	35	35	35	35	35

Source: Author's computation from e-view 9

The table shows descriptive statistics of the variables. In the model established in the study, there is one dependent variable and five independent variables. The mean of real Gross domestic Product (RGDP) was 1065879.0, the median was 1166001.1, maximum was 2133114.9, minimum was 47051.10 and sum of the variable was 37305768.45 respectively. The mean of net migration rate (NMG) was 1920615.0, the median was 2456782.2, maximum was 4890270.0, minimum was 16788.4 and sum of the variable was 67221512 respectively. The mean of international migration stock (IMG) was 66051.72, the median was 137900.0, maximum was 369369.0, minimum was 131.6000 and sum of the variable was 2311810 respectively. The mean of diaspora remittance (REM) was 141248.1, the median was 137900.0, maximum was 369369.0, minimum was 13030.00 and sum of the variable was 4943683.0 respectively. The mean of trade openness (TRADE) was 2226109.0, the median was 1188970.00, maximum was 6500024.4000, minimum was 7502.500, and sum of the variable was 77913825.8 respectively. The mean of and exchange rate (EXCH) was 67.95102, the median was 23.86438, maximum was 157.4987, minimum was 8.038285, and sum of the variable was 2378.286 respectively.

4.2 Unit root test using augmented dickey-fuller test

Table 2: Results of stationarity (unit root) test

Variables	Variables full meaning	ADF- statistics	Critical value	Lag value	Remark
RGDP	Real Gross Domestic Product	-4.868711	5% level = -2.948404	0	1(0)
NMG	Net Migration Rate	-6.005849	5% level = -2.948404	0	1(1)
IMG	International Migration Stock	-8.910698	5% level = -2.948404	0	1(1)
REM	Diaspora Remittance	-3.596637	5% level = -2.948404	0	1(0)
TRADE	Trade Openness	-5.120232	5% level = -2.948404	0	1(1)
EXCH	Exchange Rate	-6.210462	5% level = -2.948404	0	1(1)

Source: Author's computation from e-view 9

In the table 4.1, the variables that were tested with unit root are shown, the values for Augmented Dickey Fuller (ADF) statistics were presented, the lag level of each variable was identified. The Mackinnon critical values at 5% level of significant were pointed out. The order of integration of each variable was enumerated, and finally the stationarity position of each variable was also stated. The unit root test was based on the level of Augmented Dickey Fuller (ADF) statistics was stationary or not stationary on 5 percent significance level. When Augmented Dickey Fuller statistic is greater than Mackinnon 5 percent critical value in absolute term, it is concluded that the variable is stationary. The variable real GDP (RGDP) passed through Unit Root analysis at level and lag 0, augmented dickey Fuller statistic was -4.868711 while the Mackinnon 5 percent critical value was -2.948404 hence it was stationary at level. The variable net migration rate (NMG) was stationary at first difference and lag 0; its augmented dickey Fuller statistic was -6.005849 while the Mackinnon 5 percent critical value was -2.951125. The variable international migration stock (IMG) was stationary at first difference and lag 0; its augmented dickey Fuller statistic was -8.910698 while the Mackinnon 5 percent critical value was -2.951125. The variable diaspora remittance (REM) was stationary at level and lag 0; its augmented dickey Fuller statistic was -3.596637 while the Mackinnon 5 percent critical value was -2.951125. The variable trade openness (TRADE) was stationary at first difference and lag 0; its augmented dickey Fuller statistic was -5.120232 while the Mackinnon 5 percent critical value was -2.951125. The variable banks interest rate (PLR) was stationary at first difference and lag 0; its augmented dickey Fuller statistic was -6.866837 while the Mackinnon 5 percent critical value was -2.951125. The variable and exchange rate (EXCH) were stationary at first difference and lag 0; its augmented dickey Fuller statistic was -6.210462 while the Mackinnon 5 percent critical value was -2.951125. It is now referable to use auto-regressive distributed lag model to estimate the parameters.

4.3 Correlation matrix of the variables

Table 3: Result of correlation matrix

	RGDP	NMG	IMG	REM	TRADE	EXCHR
RGDP	1	0.6826	0.8121	0.7699	0.4152	0.3483
NMG	0.6826	1	0.3704	0.7894	0.0395	0.6202
IMG	0.8121	0.3704	1	0.5050	0.5780	0.0206
REM	0.7699	0.7894	0.5050	1	0.1726	0.5093
TRADE	0.4152	0.0395	0.5780	0.1726	1	-0.3449
EXCHR	0.3483	0.6202	0.0206	0.5093	-0.3449	1

Source: Author's computation from E-view 9

This correlation matrix presents a table showing correlation coefficients between sets of variables. Each random variable (X_i) in the table is correlated with each of the other values in the table (X_j). This result of correlation matrix helps to identify which pairs of variables have the highest correlation. This test is to detect whether exact or perfect relationship exist among explanatory variables (multicollinearity). The real gross domestic product (RGDP) and net migration rate (NMG) have no linear relationship between the two variables (0.6826). The real gross domestic product (RGDP) and international migration stock (IMG) have no linear relationship between the two variables (0.8121). The real gross domestic product (RGDP) and diaspora remittance (REM) have no linear relationship between the two variables (0.7699). The real gross domestic product (RGDP) and trade openness (TRADE) have no linear relationship between the two variables (0.4152). The real gross domestic product (RGDP) and exchange rate (EXCH) have no linear relationship between the two variables (0.3483). This test presented clear understanding on the assumption of ordinary least square that there is no perfect or exact linear relationship among explanatory variables. The result of correlation matrix showed that every explanatory variable in the study is linearly independent of each other.

4.4 Johansen Co-integration Test

Ho = There is no co-integration (no long run relationship among Variable)

Table 4: Co-integration test results

Date: 04/07/25 Time: 10:32				
Sample (adjusted): 1992 2024				
Included observations: 33 after adjustments				
Trend assumption: Linear deterministic trend				
Series: RGDP NMG IMG REM TRADE EXCHR				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Trace statistic**	**0.05 critical value**	**Prob.****
None *	0.856674	129.8596	95.75366	0.0000
At most 1	0.582210	65.75276	60.81889	0.0000
At most 2	0.517371	36.95112	27.85613	0.0000
At most 3	0.179569	12.91041	29.79707	0.8956
At most 4	0.120727	6.378878	15.49471	0.6507
At most 5	0.062595	2.133104	3.841466	0.1441
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
* Denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) *p*-values				

Source: Author's computation from E-view 9

The co-integration results in table 4.2.1 for the model (RGDP, NMG, IMG, REM, TRADE and EXCH) reveals that both trace test and the Max-eigenvalue test indicates 3 co-integrating equation(s) at the 5 percent level of significance. We therefore reject the null hypothesis of there is no co-integration amongst the variables and accept the alternative hypothesis that states there is co-integration amongst the variables.

4.5 Estimation of regression model

Table 5: Empirical results of the autoregressive -distributed lag model

Dependent Variable: RGDP				
Method: Dynamic Least Squares (DOLS)				
Date: 04/07/25 Time: 10:40				
Sample (adjusted): 1992 2023				
Included observations: 32 after adjustments				
Cointegrating equation deterministics: C				
Fixed leads and lags specification (lead=1, lag=1)				
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
NMG	-0.316904	0.950212	-0.333508	0.7450
IMG	-0.010547	0.018103	-0.582613	0.5719
REM	0.607804	0.078582	7.734610	0.0000
TRADE	2.708191	0.526516	5.143608	0.0003
EXCHR	-6484.480	807.0023	-8.035268	0.0000
C	122254.0	40882.44	2.990378	0.0123
R-squared	0.989297	Mean dependent var		1150967.
Adjusted R-squared	0.969836	S.D. dependent var		729855.1
S.E. of regression	126758.8	Sum squared resid		1.77E+11
Long-run variance	7.65E+09			

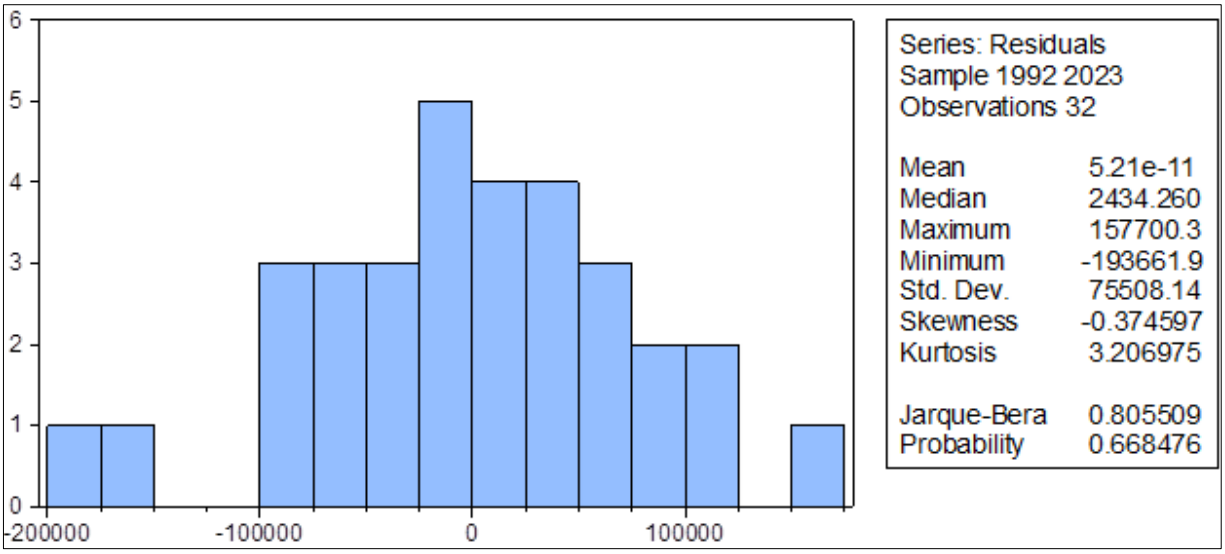
***Source*:** Author's computation from E-view 9

The Dynamic ordinary least square method (DOLS) was carried out to examine parameters estimates. In testing this hypothesis, net migration rate (NMG), international migration stock (IMG), diaspora remittance (REM), trade openness (TRADE) and exchange rate (EXCH) were regressed against Real GDP (RGDP). The result of the regression analysis represents the model for investigating impact of migration and remittance on economic growth in Nigeria. The empirical result shows that the coefficient of net migration rate (NMG) has negative and insignificant impact on real gross domestic product (RGDP) (t-statistics; -0.3335; *p*-value; 0.7450 > Sig-value: 0.005). The empirical result shows that the coefficient of international migration stock (IMG) has negative and insignificant impact on real gross domestic product (RGDP) (t-statistics; -0.5826; *p*-value; 0.5719 > Sig-value: 0.005). The empirical result shows that the coefficient of diaspora remittance (REM) has positive and significant impact on real gross domestic product (RGDP) (t-statistics; 7.7346; *p*-value; 0.0000 < Sig-value: 0.005). The empirical result shows that the coefficient of trade openness (TRADE) has positive and

significant impact on real gross domestic product (RGDP) (t-statistics; 5.1443; *p*-value; 0.0003 < Sig-value: 0.005) The empirical result shows that the coefficient of exchange rate (EXCH) has negative and significant impact on real gross domestic product (RGDP) (t-statistics; -8.0352; *p*-value; 0.0000 > Sig-value: 0.005).

4.6 Econometric/Second order test

4.6.1 Histogram normality test



Sources: E-view 9.0 Version

The null hypothesis is that there is no skewness and Kurtosis in the model. We reject the null hypothesis because the Jarqua-Bera statistics (0.8055) is less than probability value (0.0.6684). We reject null hypothesis and accept the alternative that there is skewness and Kurtosis in the model. The skewness is normal because the value was -0.3745. The model of the study produced positive skewed distribution meaning that it has a long tail in the positive direction. The kurtosis was 3.2069 meaning that the degree of peakedness was high that normal value of three (3). This implies that the standardized residuals from the estimated model in the regression framework is not normally distributed, which is consistent with the OLS assumption.

4.7 Test of Hypotheses

The results for the various hypotheses testing are presented in the section.

4.7.1 Test of hypothesis one

H_{01} Migration has no significant impact on economic growth in Nigeria

In testing this hypothesis, net migration rate (NMG is regressed against real GDP (RGDP). The empirical result shows that the coefficient of net migration rate (NMG) has negative and insignificant impact on real gross domestic product (RGDP) (t-statistics; -0.3335; *p*-value; 0.7450 > Sig-value: 0.005).

4.7.2 Test of hypothesis two

H_{O2} Remittance has no significant impact on economic growth in Nigeria

In testing this hypothesis, diaspora remittance (REM) is regressed against real GDP (RGDP). The empirical result shows that the coefficient of diaspora remittance (REM) has positive and significant impact on real gross domestic product (RGDP) (t-statistics; 7.7346; *p*-value; 0.0000 < Sig-value: 0.005).

4.8 Discussion of the Results

4.8.1 Impact of migration on economic growth in Nigeria

It was observed from the hypothesis tested that international migration has 10 percent negative and insignificant impact on economic growth (t-statistics; -0.3335; *p*-value; 0.7450 > Sig-value: 0.005). A change in international migration result 10 percent negative and indirect impact on economic growth. The finding of this study was in line with study of Nwokoro, (2024) [21] that aimed to empirically examine the effect of globalization and migration on Nigeria's economic growth. The specific objectives of the study were to determine the influence of foreign direct investment, trade openness, foreign exchange rate, remittances on gross domestic product covered the period 33 years (1990 – 2022). The ARDL (autoregressive distributed lag) model was employed for the study and a long-run relationship was established. Findings revealed that remittance had a significantly positive effect on Nigeria's economic growth in the long run. The finding of the error correction mechanism revealed a speed of adjustment to equilibrium of 31.1%.

4.8.2 Impact of remittance on economic growth in Nigeria

It was observed from the hypothesis tested that diaspora remittance has positive and significant impact on economic growth (t-statistics; 7.7346; *p*-value; 0.0000 < Sig-value: 0.005). A change in diaspora remittance result 60 percent positive and direct impact on economic growth. The finding of

this study was in line with study of Ewubare and Odu, (2024) [12] that investigated the effect of migration on economic development in Nigeria. Specifically, the study sought to examine impact of net migration rate (NMG), international migration stock (IMG) and rural-urban migration (RBM) on economic development from 1981 to 2021. Descriptive statistics, unit root test, bound cointegration test, as well as Autoregressive distributed lag (ARDL) were employed to analyse the data. The study reveals that both in the short run and long run, net migration (NMG) had a negatively insignificant impact on economic development; in the short run and long run international migrant stock (IMG) had a positive and insignificant impact on economic development. Also, in the short run, rural-urban migration (RBM) had a positive and insignificant impact on economic development in Nigeria while it had a negative and insignificant impact on economic development over the data period.

5.1 Summary of the Findings

The following are the major findings of the study**:**

1. The empirical result shows that international migration has 10 percent negative and insignificant impact on economic growth (t-statistics; -0.3335; *p*-value; 0.7450 > Sig-value: 0.005). A change in international migration result 10 percent negative and indirect impact on economic growth.
2. The empirical result shows that the coefficient of diaspora remittance has positive and significant impact on economic growth (t-statistics; 7.7346; *p*-value; 0.0000 < Sig-value: 0.005). A change in diaspora remittance result 60 percent positive and direct impact on economic growth.

5.2 Conclusion

This study concludes that migration has 10 percentage negative and insignificant impact on economic growth in Nigeria while remittance has 60 percentage positive and significant impact on economic growth in Nigeria. The study identifies that net migration rate (NMG), international migration stock (IMG) are major variables of migration. It presented an overall picture of the push and pull factors responsible for international migration in Nigeria. The result of the study revealed that the principal causes of international migration in Nigeria were job opportunities, unemployment, wealth prospects, safety and security, better conditions of service, low salaries and higher standards of living. These foremost causes of international migration in Nigeria were mostly economic factors. However, safety and security were the only sociopolitical factor that was among leading causes of international migration in Nigeria. Furthermore, the findings showed that the foremost positive and negative effects of international migration in Nigeria were integrated development, increase in remittances, cheap and surplus labour, urban services and social infrastructure under stress, stricter immigration norms, multi-ethnic society and increased tolerance, Xenophobia, close gaps in skills and cultural dilution.

5.3 Recommendations of the study

Based on the findings of this study, the following recommendations were made.

- Nigeria government should adopt strategies to stemming international migration by addressing push factors of unemployment, safety and security and low salaries and pull factors such as job opportunities, wealth prospects, limited chances of self-advancement, poor conditions of service, poverty, food security and conflicts, better conditions of service and higher standards of living since they are the root causes of international migration.
- Also, the government should stimulate remittances by ensuring that funds transfers by nationals living and working abroad does not lose its value to inflationary pressure in Nigeria. Consequently, monetary authorities should strategically identify the underlying causes of such inflationary pressures and use the appropriate policy to curtail it so as to foster price stability and economic growth in Nigeria.

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