Labour Migration, Remittances and Economic Growth in Nigeria: An Indirect Least Square Approach

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Abstract: - Labour migration is one major factor in determining the status of a given economy. The reason is two-fold; the brain drain effect on the economy which is always considered detrimental and the capital inflow into the economy which is always considered as injection into the economy. To resolve the puzzle of cross purpose implications of labour migration on the Nigerian economy, the study decided to examine the impact of labour migration and remittances on the Nigerian economy. Two models were specified. One that examines the impacts of factors that lead to emigration on emigration. The second that examine the impact of labour migration and remittances on economic growth. Being a study that involves times series, unit roots test that was conducted shows the variable of emigration and labour age are stationary at level. The result of the labour migration model shows that all the explanatory variables are positively related to labour migration. The second model also follow suit. The indirect least square estimates show that age, remittances and population exert positive influence on economic growth.The study recommends on the strength of its finding that Nigerian government should provide an enabling environment for its emigrants, so that administrative bottlenecks associated with traveling abroad are reduced to the barest minimum. The government should also provide economic environment that will encourage Nigerians in diaspora to come and invest their hard earned foreign currency to develop the domestic economy.

Keywords: Labour, Migration, Remittances, Economic growth and ILS

JEL Codes: C51, E22 and F21

I. INTRODUCTION

Migration of people in whatever form and for any reason is dated as far back as the existence of human beings. People migrate from rural to urban centres, from one urban centre to another centre, from one country to another. Most people often try to equate migration with labour migration or labour mobility, however a clear distinction between migration and labour migration is imperative. While labour mobility is a subset of labour migration, labour migration is a subset of migration. In a clearer sense, the major distinction between labour migration and migration is found in the distinction between voluntary migration and forced or involuntary migration. According to the IOM/United Nations World Migration Report 2000, voluntary migrants include people who move abroad for employment, study, family reunification, or other personal factors. Forced migrants leave their countries to escape persecution, conflict, repression, natural and human-made disasters, ecological degradation, or other situations that endanger their lives, freedom or livelihood. While labour migration is not a recent phenomenom, the discussion on it is always evergreen and can never be a cliché.

Issues surrounding labour migration are limitless, but the most fundamental cause of migration is economic consideration (ILO). Labour move for many reasons; some of which makes the classification of migration into internal or domestic migration on one hand and international migration on the other end. While the concern of this study is on international migration, its nexus with capital flight and economic growth will be at the front burner of the discourse. Interestingly, an examination of a typical production function shows that inputs to most outputs are basically divided into the fixed inputs often categorized as capital and variable inputs categorized as labour. (Abiola, 2010). When labour moves on account of economic consideration either temporarily or permanently, one variable that is central to this movement is remittances, which falls under the purview of capital flight. Although several issues are equally associated with these remittances from the country of destination to the country of origin, especially as it concerns the treatment and the ways migrants are viewed by the nationals of the host country. What is paramount in all these is manifested in the statement of Mr Juan Somavia, ILO Director-General. When he stated: "Migrant workers are an asset to every country where they bring their labour… "Migrant workers provide valuable services with their labour and furnish an often invisible subsidy to the national economies that receive them. They work in factories, produce food, provide domestic service, staff hospitals and contribute to a wide range of basic needs, often for low wages and with little recognition of the value of their contribution". All migrant workers irrespective of their status contribute to the economic prosperity of the host society (UNFPA, 1998).

II. PROBLEM STATEMENT

Migration is a global phenomenon and it is not peculiar to a country or region. The impact of migration is far reaching to the extent that sometimes the effects of migration go beyond the impacts on the origin, the destination and the

migrants. The pushing factor in most migration cases is success at the destination. The obvious fact at the end of the exercise is succinctly put in the words of Hendriks 2018 as follows: *"I came to America because I heard the streets were paved with gold. When I got here, I found out three things: First, the streets weren't paved with gold; second, they weren't paved at all; and third, I was expected to pave them."* The above position notwithstanding the zeal to go abroad at all cost has not abated not in Nigeria alone but the entire continent of Africa. According to the information from World Bank as found in Lucas (2013), the number of persons, born in Africa and living, at the turn of the Millennium, in a country other than where they were born, to be nearly twenty million. This represents some 2.4 percent of the home population of Africa, in comparison to the UN (2009a) estimate of a world migrant stock equal to 2.9 percent of global population at the time.(World Bank 2011a).

A balanced situational analysis of migration in Nigeria reveals that whereas Nigeria's migrants movement abroad has always been a topical issue, Nigeria is also a very good destination for immigrants.Nigeria is an important destination country for migrants in the West African region. The latest available figures from International Organisation on Migration (IOM)) indicate that the number of immigrants residing in Nigeria has more than doubled in recent decades, from 477,135 in 1991 to 971,450 in 2005 (NPC, 1991). The number of immigrants is expected to increase to 1.1 million in 2010 (UNPD, 2009). However, immigrants make up only 0.7 per cent of the total population.The majority of immigrants in Nigeria are from neighbouring Economic Community of West African States (ECOWAS) countries (74%), in particular from Benin (29%), Ghana (22%) and Mali (16%) (DRC, 2007). Resident permit data from ECOWAS indicate that the share of ECOWAS residents has increased considerably over the last decade, from 63 per cent in 2001 to 97 per cent in 2005 (ECOWAS, 2006).

Although it is difficult to obtain information on the skills level of emigrants, there are some indications that the propensity to emigrate is particularly high among the highly skilled. According to the latest estimates in 2000, 10.7 per cent of the highly skilled population who were trained in Nigeria work abroad, mostly in Organisation for Economic Co-operation and Development (OECD) countries. In the United States and Europe, 83 per cent and 46 per cent, respectively, of the Nigerian immigrant population are highly skilled. On average, 64 per cent of the Nigerian emigrant population have tertiary education (Docquier and Marfouk, 2006). In the medical field, 14 per cent of physicians who trained in Nigeria worked abroad, 90 per cent of whom live and work in the United States and the United Kingdom (Clemens and Pettersson, 2007).

In OECD countries, Nigerians appear to work predominantly in the health sector (21%), followed by the real estate and wholesale sectors (both with 12%). There has been a marked increase in the number of Nigerians emigrating for educational purposes. From 2000 to 2006, the number of Nigerian students abroad more than doubled, from 10,000 to 22,000 (UNESCO, 2008). The majority of these Nigerian students (approximately 6,000) study at universities in the United States. Based on the past growth rates of student migration, some studies estimate that the Nigerian student population in the United Kingdom may increase from 2,700 in 2007 to 30,000 in 2030 (Economist Intelligence Unit, 2009).

The above statistics are not unconnected with population of the country that is approaching two hundred million in the year 2018. The population with the attendant problems of corruption which has eroded human value, the harsh economic climate, the rising unemployment, the breakdown of all social amenities especially electricity has rendered many gainfully employed youths unemployed, the economic policies that favour only the few elites at the detriment of the teeming masses has made all attempts to preach to our youths to move abroad to fall on deaf ears. This explains the problem of the research. The questions are; what are the main reasons why people migrate from Nigeria to other countries, what are those things that attract Nigerians to other countries? Can't the Nigerian government provide those also to deter her people from moving abroad? How much in terms of economic loss is the country suffering on account of the brain drain? Is there any meaning contribution the remittances from abroad do to the Nigerian economy? These and many other questions form the bases for this study. Hence the broad objective of the study is is to examine the nexus between international labour migration, remittances and economic growth in Nigeria. The specific objectives include:

i. Examination of the impact of remittances on labour migration.
ii. Examination of the impact of labour migration on economic growth.

III. MIGRATION IN NIGERIA

A well-documented history of migration in Nigeria is contained in Afolayan, Ikwuyatum and Abejide (2008). As Africa's most populous country, Nigeria, with an estimated population of 180 million and over 250 ethnic groups, deals with a range of migration issues, from massive internal and regional migration to brain drain and a large, well-educated diaspora in the West (mainly the United States and the United Kingdom) that it sees as key to future development. Thousands of Nigerians seek refuge and asylum each year, and some also migrate illegally, transiting through North Africa and then crossing the Mediterranean to Europe. Poverty drives much of this movement: more than 70 percent of Nigerians live below the national poverty line. Also, millions have been internally displaced due to religious and ethnic conflicts — particularly in cities across the north — that have persisted despite the establishment of a democratic government in 1999 that followed several years of military rule.At the same time, Nigeria is home to a large number of foreigners, including those attracted by the oil-export boom

from the 1970s and displaced by political conflicts and civil wars in West Africa. Nigeria faces a number of complex challenges related to causes of migration. According to a 2007 World Bank report, these include translating the benefits of reforms into welfare improvements for its citizens, improving the domestic business environment, extending reform policies to states and local governments, focusing on non-oil growth, increasing and maintaining infrastructure investments, strengthening domestic institutions, tackling unrest in the Niger Delta, and increasing the quality of social-sector spending.

Documented history of migration in the territory that is now Nigeria dates back to four simultaneous slave trades in Africa between 1400 and 1900, the largest being the transatlantic in which 12 million slaves were exported from west, west-central, and eastern Africa to the European colonies in the Americas beginning in the 15th century. The three other slave trades — the trans-Saharan, Red Sea, and Indian Ocean — which began before the transatlantic one, involved another 6 million people. Estimates from Harvard economist Nathan Dunn indicate that Nigeria lost about 2 million people during the 500-year period, out of which about 1.4 million slaves were shipped to the Americas.The arrival of the British in the mid-19th century provided a framework for large-scale migration as the British needed a large labor force for mines, plantations, and public administration. The resulting rural-rural migration moved people to work as either migrant tenant farmers, farm labor, and/or migrant traders. In addition, migrant laborers from different parts of the country,

especially from rural areas, moved into Nigeria's regional headquarters and administrative and market centers in search of trade and gainful employment; destination cities included Lagos, Kano, Zaria, Enugu, Ibadan, Sokoto, and Kaduna, among many others. Of particular importance to rural-urban migration was the creation of mining towns and the linking of seaports in Lagos and Port Harcourt to rural areas via railways.

On emigration, an estimated 6,500 Nigerians moved to the then Gold Coast (now Ghana) and Cotonou-Parakou in Dahomey (now Benin) to work on rail lines and in gold mines between 1900 and 1902. After the railway was completed, some of the migrants became traders, and many left for Côte d'Ivoire after World War I. Côte d'Ivoire needed labor for cash-crop plantations established by the turn of the 20th century and the infrastructure improvements (ports, warehouses, railroads, and roads) designed to aid agricultural exports. According to Ghana's 1948 census, there were about 46,800 Nigerians, a number that later rose to 100,000 in 1959 following Ghana's economic development and the country's vigorous Pan-African movement after its independence. Though estimates vary depending on the source, Ghana's alien expulsion order of 1969 expelled about 140,000 Nigerians between December 1969 and early June 1970, according to the Nigerian High Commissioner. Professor AdejumokeAfoloyan and colleagues have found that the experience influenced Nigerians' migration decisions, such as movement to other destinations (in particular Côte d'Ivoire), shorter stays, and circulatory movements.

Fig 1:Nigerian Emigrants 1981 to 2016
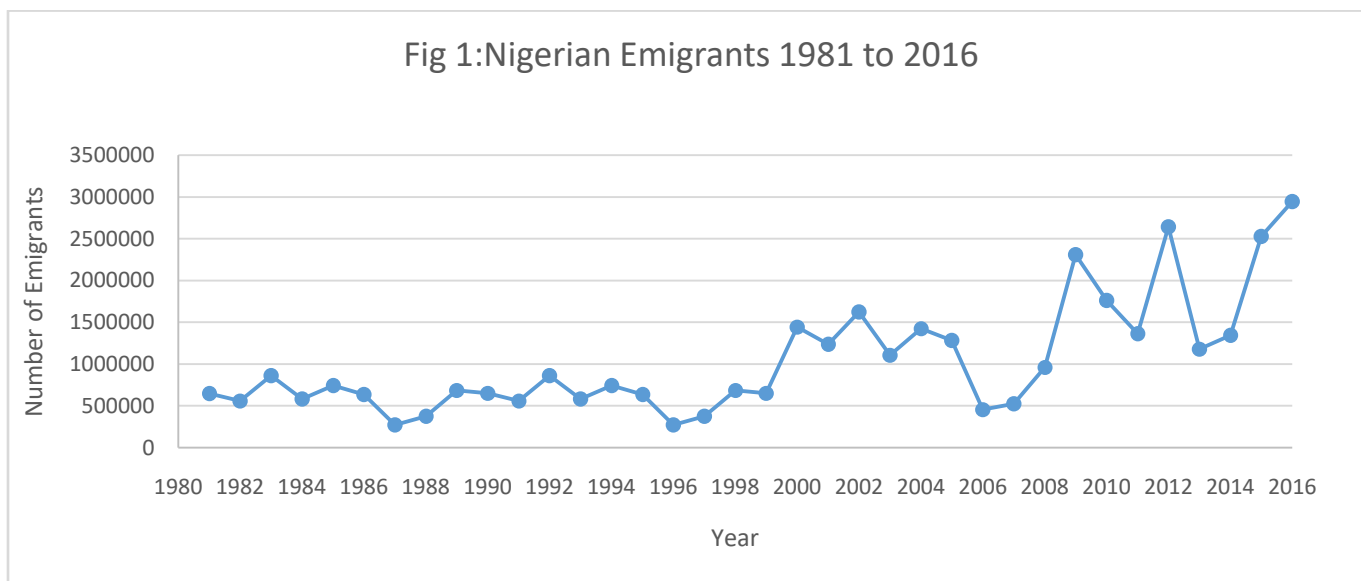
Source: Nigeria Bureau of Statistics, 2016

IV. REVIEW OF LITERATURE

The topicality of the nexus between labour migration, remittances and economic growth is evergreen and would always be at the front burner of national and

international discuss. Issues surrounding it will always be unfolding especially in this era of globalization. One of the earliest studies on labour migration was Freund (1981). The study of migrant labour in Africa has tended to emphasize social form rather than historical context. This study of the

immense migrant labour force that worked the Northern Nigerian tin mines is placed in the context of the ongoing subsumption of labour and existing social relationships by capital. Colonial conquest was required for the establishment of tin mining in Nigeria on a capitalist basis to serve the industrial needs of the West. Pre-colonial social organization prevented the release of sufficient labour for this purpose. After conquest, a migrant labour force was built up in conjuncture with a growing reserve army of labour by means of cash taxation, penetration of the market, weakening of slavery and state use of forced labour. In the second decade of the twentieth century there was substantial pressure from mineowners for the colonial regime to institute Rhodesian-style labour recruitment methods, but this was ultimately rejected because of the costs involved, the desire to encourage cash crop growth and the overarching aim of social stability. As a result, it was largely market forces which threw up the pool of labour that worked the mines, notably from the cash crop poor parts of Northern Nigeria and neighbouring French colonies. Initially, migrant labour was the most satisfactory option for many Northern Nigerian peasants, whose wages earned most in the pre-World War I era. The purchasing power of a miner's wage tended to decline, but social forces continued to throw up cheap labour. In World War II, the state instituted forced labour to mine tin, but the scheme was expensive, unproductive and opposed by business. The 1940s represented the nadir of worker poverty and the war was followed by a period of heightened social and political resistance to capital and the state. The tin mines both helped to cause and profited from the decay of the older mode of production in Northern Nigeria.

According to Tabassum, Quddos, Yassen and Sardar (2017) investigates the relationship between capital flight and labour migration in Pakistan. According to the study, capital flight and labor migration have been increasing in developing nation like Pakistan. The study employs time series data from 1983-2014 for variables like unemployed labor, capital outflow, unemployment and political instability. Different techniques such as unit root test, granger causality test, ordinary least square and two stages least square are used. Granger causality test showed that capital flight and economic growth have bidirectional causality, while labor migration and economic growth showed unidirectional causality. Two stage least square showed that political instability, labor migration, capital flight and unemployment have the negative impact on the economic growth of Pakistan. Political and security situation should be improved for better economic growth

Dubey and Mallah (2015) investigates the causes and effects of migration in India. The study defines migration is movement of people between regions or countries. That migration is the process of moving fromthe use of one operating environment to other operating environment that is, in most cases, is thought to be a better one. Immigration and emigration are usually reserved for migration into and out of countries respectively. Migration may be temporary, with the intention of returning to the country of origin in the future or permanent or migrants may not have decided between these alternatives at the time of migration. The study exposed that the main causes of migration in India are huge population, rigid educational system, lack of good job opportunities etc. Migration results in to brain drain, talent shortage, reverse brain drain, remittances etc. Migration can be taken as one of the positive factors in the era of globalization which helps in the free flow and exchange of ideas, commodities, and technology along with talents. It has its own positives and negatives. In Indian context, as of today, migration has resulted in to brain circulation.

In its contribution to the discuss on migration and its implications on regions concerned, Wickramasekara (2000) examines the trends and issues in Asian labour migration and challenges faced by countries and the trade union movement in protection of migrant workers. The paper was an updated version of a paper initially prepared for the ILO Asia-Pacific Regional Symposium for Trade Union Organizations on Migrant Workers organized by the ILO Bureau of Workers Activities in Kula Lumpur, Malaysia during 6-8, December 1999.The paper first discusses problems with current terminology and examines some popular myths about migrant workers. The study points out that receiving countries reap considerable benefits from migration, which are usually overlooked. It also traces main trends and features in Asian labour migration in the recent past, and identifies the most vulnerable groups of migrant workers who need priority attention. The paper also highlights the current dilemma faced by labour sending countries in 'protection' of national workers abroad and promotion of overseas employment. In the final section, the paper discusses the specific role of trade unions and broader policy options open to countries for protecting migrant workers in the light of ILO and other international instruments.

The concern of Onyeonoru (1994) was that of internal labour migration as it concerns rural-urban migration in Nigeria. The paper observed that rural-urban migration in Nigeria responded to changes in political and socioeconomic developments which occurred during the 1980s. Since the 1980s, rural-urban migration trends were rapidly reversed, and migrants returned to rural areas. In 1981, government revenues from oil declined. The oil production and price declines between 1980 and 1986 resulted in a foreign exchange crisis. Import restrictions were imposed, and stabilization measures resulted in scarcities of raw materials and spare parts and declines in industrial capacity. About 50% of import substitution factories went bankrupt. Between 1981 and 1983, about one million workers were estimated to have been laid off, of which 55,000 were federal and state employees. Other estimates indicated one million laid off just in the industrial sector. The government reinforced this urban-rural movement by emphasizing increased food production. In 1992, government wages were increased in order to offset high inflation. In 1986 and 1992, State and Local Government

Areas were established as political entities tied to grassroots development; local offices were situated in greater proximity to local populations. In 1986, the objective was to provide infrastructure, promote production, and organize rural areas for development. Several community banks devoted to rural areas were established. Development programs for rural women were initiated. Federal revenue allocations to rural areas increased from 10% to 15%. Inducements were given to attract private formal and informal commerce and industry. The result was less than expected. Obstacles to rural development included the absence of an effective and integrated approach, inadequate funding, and corruption. Provision of good roads and schools did meet objectives and may have induced out-migration. Delays in provision of entitlements exacerbated the ability of return migrants to establish new economic activity. The new political divisions did not conform to demographic or labor market areas. The sudden redistribution of population was difficult for local governments to accommodate. Social adjustment was difficult, and primary education costs were sacrificed at the expense of expanded higher education.

Motivated by growing public and policy concerns with the social implications of climate change, Hunter and Nawrotzki (2016) reviews theory and research on the environmental dimensions of human migration. The paper exposed that recent research on migration-environment connections employs a variety of methods including time series analysis to capture the dynamic nature of migrant flows, multilevel modeling to account for nested data structures, agent-based modeling to incorporate feedback mechanisms, and qualitative ethnographic approaches to investigate causal pathways between environmental triggers and migration responses. Historical analogs and research in disaster settings have alsoprovided useful insight. Findings reveal that the natural environment can act as a 'push' factor when livelihoods are challenged by chronic long-term, or rapid onset, environmental change. Scholarly work also stresses the reciprocal impacts of migration on the environment, with negative and positive ecosystem effects in both origin and destination communities. Finally, the paper opined that recent research has employed empirical simulation of migration as related to projected environmental scenarios, suggesting future increases in environmentally-influenced migration flows. The paper however suggests for further studies, investigation of migration form and distance (domestic vs. international), rural-urban linkages, health aspects, and social inequalitiesas both amplifier and implication of environmental migration.

The contribution of Ikwuyatum (2016) is on migration and urbanization. The study concurs that urbanization is on the increase globally, as more and more people are migrating from rural to urban spaces, essentially due to the socio-economic inequality that exist between these two spaces, to the advantage of the urban space. The rise in the urban population is manifest, as it has risen from 10

percent in 1953 to 36 percent in 1991 and 50 percent in 2015. Though the migration-urbanization issue and/or the increasing flow of people from rural to urban centers in Nigeria is exacerbating and on the front burner of human development agenda in the country, there is paucity of works in the literature that focus on the drivers of the nexus between migration and urbanization. The paper therefore examines the drivers and/or factors that facilitate the linkage between migration and urbanization, within the conceptual framework of migration and urbanization. The paper identified and examined quest for education, health, employment opportunities, transportation and communication, trade and commerce, social conflict and violence as driving factors of the nexus between migration and urbanization, within the concepts of migration and urbanization.

Igbolo and Adaka (2017) tries to examine the impact of migration on socio-economic development of an area council in Nigeria. In carrying out the study, the survey methodwas adopted, which allowed for the distribution of 150 questionnaires among the sampled population who are residents of Gwagwalada Area Council. Findings revealed that the increase in population has resulted in increased labour force across various occupational competencies in the area; also, there have been increased incidences of crime but with improved commercial benefits; the test of hypothesis revealed that there is a correlation between labour migration and development. The study therefore recommends that government should adopt measures to check the influx of persons from the rural areas by investing in rural communities/ societies. Concerted effort should also be put towards financing the rural enterprises and encouraging effectiveand efficient agricultural activities by putting in place a National Policy Framework. Rolling Plans should be adopted, as this would assist in increasing the productivity of the rural societies.

Ajaero and Onokala (2103) examined the effects of rural-urban migration on the rural communities of Southeastern Nigeria. Data were obtained using mixed methods approach comprising questionnaire surveys and key informant interviews. Six rural local government areas (LGAs) were selected based on population size and spatial equity from two states of Southeastern Nigeria. From each of the rural LGAs, fifty migrant-sending households were sampled for the study. Multiple regression and hierarchical cluster analyses were used to estimate and categorize the effects of rural-urban migration due to remittances and community projects executed by the rural-urban migrants, respectively. In addition, the Chi-square and Kruskal-Wallis tests were utilized in prioritizing areas for development interventions in the rural communities. The regression analysis shows that rural-urban migration contributes significantly towards the development of their rural communities through monetary remittances and the involvement of the rural-urban migrants in community development projects. Based on the findings,

recommendations such as initiation of development projects based on the identified needs of each of the rural communities to augment the effects of migration in the study area are made.

In a paper on remittance and growth, Adeyi and Oteikwu (2017) set out to investigate the causal link between remittances and economic growth in one country each from Africa and Asia continents i.e. Nigeria and Sri Lanka. The study employed Granger-Causality under the Vector Autoregressive Regression (VAR) framework on the time series annual data from 1985 to 2014. The results revealed that there is a unidirectional link in Nigeria, that is, remittances are found to lead to economic growth while economic growth does not lead to remittances inflow; but in Sri Lanka, a two-way directional causality is found, that is, remittances influences growth in economic growth and vice-versa. Since the influence of the remittance on growth depends on the sustainability of the inflows and appropriate channeling structure, the study concludes by recommending the need to leverage remittances for small and medium enterprise development and microfinance as well as creating enabling macroeconomic environment.

V. THEORETICAL FRAMEWORK AND MODEL SPECIFICATION

So many models have been specified in economic literature for the purpose of finding the nexus between international labour migration, remittances and economic growth. According to the neoclassical theory as reviewed by Kurekova (2011), migration is understood to be driven by differences in returns to labor across markets. The most basic model originally developed to explain migration in the process of economic development in the works of Hicks (1932), Lewis (1954) and Harris and Todaro (1970) highlights that migration results from actual wage differentials across markets or countries that emerge from heterogeneous degrees of labor market tightness. According to this theory, migration is driven by geographic differences in labor supply and demand and the resulting differentials in wages between labor-rich versus capital-rich countries. The central argument of the neoclassical approach thus concentrates on wages. Under the assumption of full employment, it predicts a linear relationship between wage differentials and migration flows (Bauer and Zimmermann 1999; Massey et al. 1993; Borjas 2008).

On the basis of this theoretical foundation, the study adopted the model specified byKaragoz (2009) where the impact of remittances on economic growth in Turkey was specified as follows:

$$GDPPC_t = \beta_0 + \beta_1 GDPPC_{t-1} + \beta_2 RREM_t + \beta_3 REXPO_t + \beta_4 RINV_t + \beta_5 RFDI_t + \varepsilon_t ....1$$

where

$GDPPC_t$	=	Gross Domestic Product per capita
$GDPPC_{t-1}$	=	One lagged period of per capita GDP
RREM	=	the ratio of workers remittances to GDP

REXPO	=	the ratio of export to GDP
RINV	=	the ratio of gross domestic investment to GDP
RFDI	=	the ratio of FDI inflow to GDP

The above model was modified for simplicity and availability of data and are split into two for each model to address each of the specific objectives as follows:

Examination of the impact of remittances on labour migration

$$EMIG = f(REM, AGE, GDP, POP) \; ....2$$

Where:

EMIG	=	Emigration
REM	=	Remittances
AGE	=	Labour age 15-64
GDP	=	Gross Domestic Product, a proxy for Economic growth
POP	=	Population

When linearly presented, we have:

$$EMIG = \alpha_0 + \alpha_1 REM + \alpha_2 AGE + \alpha_3 GDP + \alpha_4 POP + \mu_t$$
$$.........3$$

With a priori expectation

$$\alpha_1 > 0, \alpha_2 > 0, \alpha_3 < 0 \; and \; \alpha_4 > 0$$

Examination of the impact of labour migration and capital flight on economic growth:

$$GDP = f(EMIG, REM, POP) \qquad ....4$$

With the linear representation as

$$GDP = \beta_0 + \beta_1 EMIG + \beta_2 REM + \beta_3 POP + \varepsilon_t \quad ....5$$

The a priori expectation of $\beta_1 < 0, \; \beta_2 > 0, \; \beta_3 > 0,$

VI. ESTIMATION PROCEDURE

Following the two models specified above in which the exogenous variable of GDP in equation 3 is the endogenous variable of equation 4, and to avoid the simultaneity problem that is normally associated with simultaneous equation models, the study conducted a simultaneity bias test using the order condition to enable us to determine whether an Indirect Least Square (ILS) or the two stage least (2SLS) approach is best in estimating the equations. Using the order condition, according to Gujarati (2009), in a model of M simultaneous equations, in order for an equation to be identified, the number of predetermined variables excluded from the equation must not be less than the number of endogenous variables included in that equation less than 1, that is $K - k \geq m - 1$. Where K is the number of predetermined

variables in the model including intercept, k is the number of predetermined variable in a given equation and m is the number of endogenous variables in a given equation.

Referring to equation 3, there are three exogenous (predetermined) variables plus the intercept, thereby making K=4, k =3, m=2 and the order condition of $K-k \geq m-1$ is such that 4-3=2-1. This result show that equation 3 is exactly identified. While for equation 5, $K-k \geq m-1$ is such that 3-2=2-1. Which also means that the equation is just identified. An implication of which is that although two stage least square is superior in terms of econometric technique, the indirect least square is best suited for the case of exactly identified equations.

Substituting equation 3 into 5, we have;

$$GDP = \beta_0 + \alpha_0\beta_1 + \alpha_1\beta_1 REM + \beta_1\alpha_2 AGE + \beta_1\alpha_3 GDP + \beta_1\alpha_4 POP + \beta_1\mu_t + \beta_2 REM + \beta_3 POP + \varepsilon_t \ldots\ldots\ldots 6$$

This yields;

$$GDP = \frac{\beta_0 + \alpha_0\beta_1}{1-\alpha_3\beta_1} + \frac{\beta_2 + \alpha_1\beta_2}{1-\alpha_3\beta_1} REM + \frac{\alpha_1\beta_2}{1-\alpha_3\beta_1} AGE + \frac{\beta_3 + \alpha_4\beta_1}{1-\alpha_3\beta_1} POP + \frac{\varepsilon_t + \beta_1\mu_t}{1-\alpha_3\beta_1} \ldots\ldots\ldots\ldots 7$$

Equation 7 is an indirect method of estimating the impact of remittances on economic growth.

VII. PRESENTATION AND DISCUSSION OF RESULTS

7.1 Table 1: Descriptive Statistics

	EMIG	REM	AGE	GDP	POP
Mean	5.96	7.49	7.72	12.70	8.08
Median	5.90	7.67	7.72	12.78	8.08
Maximum	6.47	9.03	7.73	14.01	8.27
Minimum	5.43	5.74	7.72	11.16	7.88
Std. Dev.	0.27	0.95	0.00	1.01	0.12
Skewness	0.09	-0.35	-0.51	-0.21	-0.05
Kurtosis	2.24	2.10	1.89	1.59	1.76
Jarque-Bera	0.96	2.03	3.59	3.43	2.46
Probability	0.62	0.36	0.17	0.18	0.29
Sum	226.38	284.53	293.49	482.58	307.10
Sum Sq. Dev.	2.75	33.42	0.00	37.40	0.54
Observations	38.00	38.00	38.00	38.00	38.00

Source: Author's computation

The summary statistics in Table 1 also provides information on all thevariables such as the logs of inflation (EMIG), emigration (EMIG), labour age (AGE), gross domestic product (GDP) andpopulation (POP). Further statistical tests that affirmed the symmetric nature or otherwise of the data set were the skewness, the standard deviation and the Kurtosis. The skewness for a normal distribution is between zero and one. Of the 5 variables in Table 1, the skewness of all of them is between zero and one.

This was a further confirmation of the normality of the data set.

7.2. Correlation

Table 2 displays correlations between logarithm of emigration (EMIG) and its determinants. This was done to avoid inconsistency in the regression analysis by establishing the substitutability of the variables. As a result, they provide a useful guide in the interpretation of the estimated models. The simple correlations suggest that there was a positive correlation between logarithm of EMIG and the logarithm of all other variables. In most cases, the correlation appears to be strong, as the coefficients of the correlation in most cases are more than 60%.

Table 2: Statistics of Correlation

	AGE	EMIG	GDP	POP	REM
AGE	1.00	0.51	0.63	0.71	-0.23
EMIG	0.51	1.00	0.74	0.72	0.30
GDP	0.63	0.74	1.00	0.98	0.25
POP	0.71	0.72	0.98	1.00	0.08
REM	-0.23	0.30	0.25	0.08	1.00

Source: Author's Computation

7.3. Unit root test

Table 3. Augmented Dickey Fuller Unit Root Test

Critical Statistics: 1% =-4.2268, 5% = -3.5366, 10% = -3.2003

Variables	Level	1st Difference	2nd Difference	Order of Integration
EMIG	-3.8422**			I(0)
REM	-1.7266	-6.5563*		I(1)
AGE	-13.3234*			I(0)
GDP	-1.5040	-3.3195***		I(1)
POP	-1.8184	-4.8708*		I(1)

Source: Author's Computation

*Significant @1%, ** Significant@5%, ***Significant@10%

Table 3 shows the unit root test results using Augmented Dickey Fuller (trend and intercept) approach. From the results two of the series are stationary at level, while three others are not. The non-stationary variables were made stationary after first differencing.

7.4 OLS Estimates of the First Model

Table 4 shows the OLS estimates of the model that examines the remittances on labour migration in Nigeria.

Dependent Variable: EMIG				
Method: Least Squares				
Sample: 1981 2018				
Included observations: 38				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-88.07027	79.16056	-1.112552	0.2739
REM	0.064830	0.057265	1.132107	0.2657
AGE	10.90666	10.58175	1.030705	0.3102
GDP	0.418158	1.062837	0.393436	0.6965
POP	0.455113	2.141563	0.212514	0.8330
R-squared	0.581965	Mean dependent var		5.957290
Adjusted R-squared	0.531295	S.D. dependent var		0.272671
S.E. of regression	0.186676	Akaike info criterion		-0.396804
Sum squared resid	1.149984	Schwarz criterion		-0.181332
Log likelihood	12.53927	Hannan-Quinn criter.		-0.320140
F-statistic	11.48521	Durbin-Watson stat		1.300121
Prob(F-statistic)		0.000006		

Source: Author's computation using E-Views 9.0

The result above can be presented in linear equation as follows:

$$EMIG = -88.07 + 0.06REM + 10.91AGE + 0.42GDP + 0.46POP..................8$$

$$(-1.11) \quad (1.13) \quad (1.03) \quad (0.39) \quad (0.21)$$

In consistent with the correlation results obtained from the correlation statistics in table 2, all the explanatory variables are positively related to labour emigration in Nigeria. A unit rise in remittances will lead to a 0.06unit rise in emigration. Labour age is found to have exerted highest influence on labour emigration as a unit rise in labour age leads to about 10.91unit rise in emigration. Although if judged by the necessary condition of t-ratio reported in parenthesis, all the explanatory variables appear not significant in the model, but the sufficient condition of $F_{5\%, 37, 33}=1.84$, shows that F calculated of 11.49 which is greater than 1.84 from the table confirms the position of non-acceptance of the null hypothesis. This means that all the variables put together are significant in explaining labour migration in Nigeria. The R^2 of 58% is strong enough to confirm reliability on the model.

7.5 OLS Estimates of the Second Model

Table 4 shows the OLS estimates of the model that examines the remittances on labour migration in Nigeria.

Dependent Variable: GDP				
Method: Least Squares				
Sample: 1981 2018				
Included observations: 38				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.526534	0.390582	-6.468643	0.0000
EMIG	0.007036	0.027866	0.252477	0.8022
REM	0.043648	0.005604	7.788761	0.0000
POP	1.932471	0.060309	32.04305	0.0000
R-squared	0.985714	Mean dependent var		13.45974
Adjusted R-squared	0.984454	S.D. dependent var		0.243724
S.E. of regression	0.030388	Akaike info criterion		-4.050215
Sum squared resid	0.031397	Schwarz criterion		-3.877838
Log likelihood	80.95409	Hannan-Quinn criter.		-3.988884
F-statistic	782.0105	Durbin-Watson stat		0.988707
Prob(F-statistic)		0.000000		

Source: Author's computation Using E-Views 9.0

When linearly presented in equation form, we have;

$$GDP = -2.53 + 0.007EMIG + 0.04REM + 1.93POP..........................9$$

$$(-6.46) \quad (0.25) \quad (7.79) \quad (32.04)$$

In consistent with the correlation results obtained from the correlation statistics in table 2, all the explanatory variables are positively related to labour emigration in Nigeria. A unit rise in remittances will lead to a 0.06unit rise in emigration. Labour age is found to have exerted highest influence on labour emigration as a unit rise in labour age leads to about 10.91unit rise in emigration. Although if judged by the necessary condition of t-ratio reported in parenthesis, all the explanatory variables appear not significant in the model, but the sufficient condition of $F_{5\%, 37, 33}=1.84$, shows that F calculated of 11.49 which is greater than 1.84 from the table confirms the position of non-acceptance of the null hypothesis. This means that all the variables put together are significant in explaining labour migration in Nigeria. The R^2 of 58% is strong enough to confirm reliability on the model.

7.6. The Indirect Least Square Results

Substituting the estimated emigration equation in 8 into the growth equation in equation 9, the result produced an indirect least square estimates that examine the impact of REM, AGE and POP on economic growth. The result of which is presented in equation 10 as follows:

$$GDP = -3.155 + 0.04REM + 0.076AGE + 1.936POP..........................10$$

The result of which is not different from equation 9, except for the inclusion of the AGE variable in the model. While the AGE variable is equally positively related to economic growth, it indicates that a unit rise in the labour age of 15-64 leads to 0.076unit rise in economic growth.

VIII. CONCLUSION AND RECOMMENDATION

From the above analysis, it is confirmed that remittances have a strong impact on labour migration, while labour migration is also one of the significant determinants of economic growth in Nigeria. Remittances, labour age, economic growth and population are found to have exerted positively on emigration. Emigration in turn was found to be positively related to economic growth. The implication of this is that while all

countries are wary of the danger associated with brain drain, developing countries like Nigeria has more to benefit than to lose in terms of its citizens moving abroad for greener pastures.The study recommends on the strength of its finding that Nigerian government should provide an enabling environment for its emigrants, so that administrative bottlenecks associated with traveling abroad are reduced to the barest minimum. The government should also provide economic environment that will encourage Nigerians in diaspora to come and invest their hard earned foreign currency to develop the domestic economy.

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