An Empirical Analysis of the Relationship between Net Migration and Macroeconomic Condition of Nigeria

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Abstract: **Nigeria is an important migration destination within the West African sub-region. However, over the past two (2) decades, the country has consistently recorded a negative net migration rate, implying a higher number of emigration than immigration. Drawing from the neoclassical and modern theories of migration, which highlight economic condition as a major factor in the decision to migrate, this paper seeks to empirically assess the relationship between the net migration pattern in Nigeria and the macroeconomic condition of the country over the past three (3) decades (from 1991 to 2020). Using the OLS regression analysis, the findings show a regression value (R2) of 0.847, which implies that the variables of macroeconomic condition (economic growth, real GDP per capita, unemployment rate, inflation rate, and current account balance) account for 85% of the variation in the net migration rate of the country. Among these variables, real GDP per capita and the unemployment rate were found to have a significant impact on net migration. However, the negative relationship between real GDP per capita and net migration rate shows that an increase in the prosperity of residents in Nigeria reduces the net migration rate.This suggests the existence and the need to deal with unequal distribution of income in the country, which limits the trickledown effect of an improved economy. Also, the positive relationship between the unemployment rate and net migration suggests the existence of other factors other than economic factors (as suggested by the modern theory of migration), which play a critical role in the decision to immigrate to or emigrate from Nigeria.**

Keywords: **Net Migration, Immigration, Emigration, Macroeconomic Condition, Nigeria, Economic Growth, Real GDP per Capita, Unemployment, Inflation**

I. INTRODUCTION

International migration is a phenomenon that has witnessed increasing policy focus over the two decades. While this phenomenon is driven by a variety of factors that range in complexity and tend to be mutually interconnected, it remains one of the fundamental drivers of development and social transformation in all the regions of the world (Castles, 2019). This has resulted in the liberalization of migration policies, with a shift in policy focus from the curtailing of migrants, to the selection of migrants by immigration countries (Haas et al., 2018). While the number of international migrants has increased globally over the years, understanding the drivers of international migration will require a multifaceted analysis of several factors as well as their interconnectedness. Kuhnt (2019) classifies these drivers into micro-level drivers, meso-level drivers, and macro-level drivers.

Micro-level drivers comprise factors relating to age, traits, personality, and education, while Meso-level drivers comprise factors such as migration culture, smuggling, information, and technology. Macro-level factors, however, comprise factors such as migration governance and policies, economic opportunities, conflicts, the welfare of the state, and so on. Within this bouquet of drivers, selecting the most important driver(s) require a rigorous analysis of these factors, as well as their mutual dependence. This analysis becomes more challenging in the context of net migration within a country, as certain factors can drive both emigration and immigration. However, researchers (Massey, 1988; Lilleør&Broeck, 2011; Dumont, 2014; Simpson, 2017; Castelli 2018) agree, based on theories and empirical analysis, that macroeconomic condition is strictly linked with migration (both immigration and emigration), largely as a result of the economic benefits of migration to both host and home countries of migrants.

In the context of Nigeria, data from the United Nations show that the country has consistently maintained a negative net migration rate over the past four (4) decades (Macro Trends, 2021). With its 2021 net migration rate at -0.288 per 1,000 population, Nigeria ranks lower than other emerging economies such as Brazil (0.055 per 1,000 population), Russia (0.874 per 1,000 population), and South Africa (2.258 per 1000 population). While Nigeria has had more emigrants than immigrants for each of the past forty (40) years, a plethora of drivers or factors responsible for this trend has been identified by various researchers. Some of these factors include individual characteristics (or micro-level factors), household factors, economic conditions, geographical factors, poverty, social transformation, and so on (Flahaux & Haas, 2016; Abdu et al., 2017). However, given the strong linkage between macroeconomic condition and international migration, as empirically demonstrated by researchers and as opined by theories such as the neoclassical theory of migration, there is a need to empirically assess the significance and role of Nigeria's macroeconomic condition in the net migration trend of the country over the past three (3) to four (4) decades. Therefore, this paper seeks to empirically assess the relationship between net migration and the macroeconomic condition of Nigeria.

II. LITERATURE REVIEW

2.1 Conceptual Review

Over the years, several contesting definitions of migration have been offered. One of these definitions was given by Kok (1999), who defines migration as the crossing of the boundary of a defined space by a person or people changing their residence. This definition aligns with the definition provided by the International Organization for Migration (IOM), which define migration as the act of an individual or a group of people travelling across an international border or within a country (IOM, 2011). The movement across boundaries gives rise to the concepts of emigration and immigration, which are the types or categories of migration, and whose differences make up the net migration for a country. While the IOM defines immigration as the movement of non-citizens into a country to take residence, emigration is the departure from a state or country with a purpose or intent of residing in another country (IOM, 2011). While the IOM defines net migration (also referred to as migratory balance) as the difference between people entering a territory and the territory within the same period, the World Bank defines net migration as the difference between those entering a territory and those leaving the same territory over five years (IOM, 2011; World Bank, 2021). This difference in periodic consideration results in the disparity of data on net migration provided by these organizations. This paper, however, adopts the definition of net migration by the IOM, as it enables the assessment of annual net migration data and their relationship with corresponding annual data on indicators or variables of macroeconomic condition.

While the macroeconomic condition is a concept that is difficult to define as a result of the multiplicity of factors that it is made of, it can be better understood within the context of its indicators. These (macroeconomic indicators) are statistics and/or data sets that reflect the performance of an economy or a government, and serve as the basis for policy formulation at the national or state level (OECD, 2002). According to Mugge (2015), these indicators are used in the assessment of the health of an economy. Therefore, in this paper, the term 'macroeconomic condition' is defined as the health of an economy. Some of the indicators of the macroeconomic condition of an economy include Gross Domestic Product (GD), inflation, unemployment, the balance of payment, and public deficits, to mention a few (Mugge, 2015).

2.2 Theoretical Review

Among the several theories that have been developed to explain the factors that drive migration are the neoclassical theory of migration and the modern theory of migration; two theories that have a significant impact on early work and research on migration. The neoclassical theory of migration holds the basic assumption that migration is driven by economic comparison, given that migrants are rational actors who move from places or societies with high labour supply and low wages, to places or societies with low labour supply and high wage rates (Angner&Loewenstein, 2012). The neoclassical theory centres on wage differentials, as well as conditions within the labour market, as a driver of migration, therefore postulating labour related elements of economic factors as the main driver of the migration. However, a major limitation of this theory, as pointed out by Haas (2021), is the fact that the theory only explains the migration of highly skilled workers or persons with skills that may be in limited supply in other regions outside the region of residence of the migrant. It also considers only one element within the framework of macroeconomic indicators.

The modern theory of migration, on the other hand, which is based on a contract of emigrating and immigrating areas, asserts that migration is driven by a combination of push and pull factors (Angner & Loewenstein, 2012). While the push factors include factors such of the poverty level, conflict and violence, unemployment, and war, to mention a few, the pull factors include improved health care, higher income level, better educational systems, and so on (Angner&Loewenstein, 2012; Haas, 2021). While the modern theory provides a more diversified set of drivers of migration than the neoclassical theory does, both theoretical approaches explain the decision to migrate by incorporating macroeconomic conditions as a major driver of migration. The empirical analysis of the relationship between net migration and macroeconomic condition, in this paper, will test the validity and applicability of both theories within the context of Nigeria.

2.3 Empirical Review

While there has been an avalanche of research that seeks to establish the economic impact of migration in Nigeria, there is a dearth of research that aims at empirically assessing the impact that the macroeconomic condition or performance of Nigeria has on net migration in Nigeria. For instance, Adedokun & Karzanova (2019) assess the impact migration has on the economy of Nigeria. In this paper, the researchers highlight the increase in brain drain, as well as the fact that the growing rate of emigration in recent years has been driven by the high rate of unemployment, but has resulted in high migrant remittances, which surpasses both the Foreign Direct Investment (FDI) and the inflows in Development Assistance, and has constituted a major source of foreign exchange earnings for the country in recent years. This is in line with the findings from a report by PricewaterhouseCoopers (PwC) which showed that in 2018, foreign remittances from nationals abroad were 83% of the Nigerian budget and eleven (11) times the Foreign Direct Investment made in the same period (Nevin & Omosomi, 2019). While Adedokun & Karzanova (2019) points to unemployment as a driver of emigration in Nigeria, their research lacks an empirical analysis that establishes unemployment as a (significant) factor responsible for migration of nationals to foreign countries, while also failing to take into consideration the drivers of immigration into the country. Similarly, Oli et al (2009) assess the relationship between migration and economic recession in Nigeria. While they rely on secondary data (textual) analysis, their findings reveal that Nigeria (despite being an important migration destination in the West-African sub-region) has a

negative net migration which is driven by the high rate of emigration among the skilled labour force. Like Adedokun &Karzanova (2019) pointed out, Oli et al (2009) highlighted high unemployment as a factor responsible for the high rate of emigration. While Oli et al (2009) failed to provide an empirical analysis that considers both immigration and emigration trends, and how the economic condition of the country drives these trends, their finding is similar to the findings of Popogbe and Adeosun (2020), who using e auto-regressive lag model (ARDL), found a positive but insignificant relationship between the unemployment rate and migration.

In another research, Anetor (2019) focuses on remittance (which results from emigration) and how it affects economic growth. Using the autoregressive distributed lag (ARDL) model, Anetor (2019) assesses the short and long term relationship between these variables and finds that remittances have a significant and negative effect on economic growth in both the short and long run. This research is limited by its consideration of only one aspect (remittances) of the effect of one aspect of net migration (emigration), and how it affects one aspect of the macroeconomic condition of Nigeria (i.e. economic growth). However, like Anetor (2019), Olubiyi (2019) also establishes the negative impact that emigration has on both employment and wages in Nigeria, using the Ordinary Least Square (OLS) analysis. Both the findings of Anetor (2019) and Olubiyi (2019) point to the need for a concerted effort by the government to channel these remittances made by emigrants to investments that can create jobs and contribute to the growth and development of the economy. However, in the context of the aim of this paper, the analysis and findings by both Anetor (2019) and Olubiyi (2019) are limited by the fact that they assess the impact of the migration has on the economy, and not the impact that the economy has on migration.

While there is an avalanche of research attempts aimed at assessing the impact that migration (particularly emigration) has on the economic condition of Nigeria, there is a lack of research that provides an empirical assessment of how the economic condition of Nigeria drives or influences the country's migration, from a holistic perspective (i.e. considering both immigration and emigration); a knowledge gap which this paper seeks to fill. Among other things, findings from such research will inform the formulation of economic policies that can help to stem to increase in brain drain in Nigeria, as pointed out in the findings by Popogbe and Adeosun (2020), amid a growing trend of liberalization of migration policies by migrant destination countries, which seek to attract the skilled and talented labour force for the development of their economy.

III. METHODOLOGY

To achieve the aim of this paper, which is to empirically assess the relationship between net migration and the macroeconomic condition of Nigeria, this paper adopts a quantitative approach. The quantitative approach is most appropriate for this paper, as a result of the fact that it entails the analysis of time series data on the dependent and independent variables from 1991 to 2020.

3.1 Model Specification

This paper also seeks to test the following hypothesis;

Ho: The macroeconomic condition of Nigeria has no significant impact on the net migration rate of the country

Ha: The macroeconomic condition of Nigeria has a significant impact on the net migration rate of the country

To test this hypothesis, and achieve the aim of this paper, the model constructed is defined as;

$$NMR_t = f\ (EGR_t, RGDPPC_t, INF_t, UMP_t, CAB_t) \text{----------} (1)$$

The operational and the log form of this model is defined as;

$$NMR_t = \beta_0 + \beta_1\ EGR_t + \beta_2\ RGDPPC_t + \beta_3\ INF_t + \beta_4\ UMP_t + \beta_5\ CAB_t + \varepsilon_t \text{-------------------------------} (2)$$

$$LnNMR_t = \beta_0 + \beta_1\ LnEGR_t + \beta_2\ LnRGDPPC_t + \beta_3\ LnINF_t + \beta_4\ LnUMP_t + \beta_5\ LnCAB_t + \varepsilon_t \text{------------------------} (3)$$

Where;

NMR = Net Migration Rate

EGR = Economic Growth Rate

RGDPPC = Real GDP Per Capita

INF = Inflation Rate

UMP = Unemployment Rate

CAB = Current Account Balance

3.2 Sources of Data

This paper uses annual time series data from 1991 to 2020 to analyse the effect that selected indicators or variables of macroeconomic condition, specifically Economic Growth Rate (EGR), Real GDP Per Capita (RGDPPC), Inflation Rate (INF), Unemployment (UMP), and Current Account Balance (CAB), has on the Net Migration Rate (NMR). The data on the Net Migration Rate is from Macro Trends, which presents data from the United Nations World Population Prospects. Also, the data on the Inflation Rate and the Current Account Balance is from the Central Bank of Nigeria (CBN). Data on the Economic Growth Rate, the Real GDP Per Capita, and the Unemployment Rate are from the World Bank.

3.3 Method of Analysis

To assess and empirically establish the nature of the relationship and the impact that the macroeconomic condition of Nigeria has on its Net Migration Rate, this paper adopts the OLS regression analysis, which will aid the estimation of the parameters in the regression model constructed for this study.

IV. DISCUSSION OF FINDINGS

Table 1 presents the result of the regression analysis for the model constructed and presented in the prior section. In assessing the relationship that net migration has with the

macroeconomic condition of Nigeria, the regression analysis shows that the regression value (R2) of Net Migration is 0.847. This implies that the macroeconomic condition of Nigeria explains approximately 85% of variations and the pattern of Net Migration in Nigeria, at a 5% level of significance.

Table 1: Regression analysis of the relationship between Net Migration and Macroeconomic condition of Nigeria from 1991 to 2020

Variables	Coefficients	T-Values	P-Values	VIF
Constant	26.094	1.754	0.092	
Economic Growth Rate	-0.009	-0.268	0.791	1.733
Real GDP Per Capita	-1.624	-9.772	<.001	1.68
Inflation Rate	0.031	0.501	0.621	1.623
Unemployment Rate	0.545	3.944	<.001	1.733
Current Account Balance	-0.734	-1.098	0.283	1.027
R^2	0.847			
Adjusted R^2	0.815			
F-Value	26.482			
P-Value	< 0.001			
Observation	30			
Method	OLS			

Source: Author's SPSS Output (Significant at 5%)

With all the independent variables having a VIF statistic of less than 2, there is no cause for concern about multicollinearity in the regression analysis. The results from the regression analysis also show that economic growth, real GDP per capita, as well as current balance negatively impact Net Migration. A unit increase in economic growth, real GDP per capita, and current account balance results in a 0.009, 1.624, and 0.734-unit decrease, respectively, in Net Migration. A reduction in net migration could be either as a result of emigration increasing while immigration remains at the same rate or is reduced, or it could result from both immigration and emigration reducing, but with immigration reducing at a faster rate than emigration. This, therefore, implies that the prosperity of the economy (reflected in high growth rate, more income per capita, and more exports than imports) either results in more people leaving the country or is not enough incentive for nationals to remain in the country.

While the impact of economic growth and current account balance on net migration rate is insignificant, real GDP per capita has a significant and negative relationship with the Net Migration rate in Nigeria. On the other hand, while inflation has a positive and insignificant impact on net migration, the unemployment rate has a significant and positive impact on net migration. This means that a unit increase in unemployment increases net migration by 0.545 units. The significance of unemployment in this regression model aligns with the findings of Oli et al (2009) and Adedokun & Karzanova (2019), who pointed out unemployment as a

significant driver of emigration, as well as the assertions of the neoclassical theory of migration and the modern theory of migration, which both view unemployment as a push-factor that drives emigration. However, the positive direction of the relationship between unemployment and net migration contradicts existing literature and theory, as it suggests that an increase in the unemployment rate causes immigration to increase at a higher rate than emigration.

The P-Value for the model, from the result of the regression analysis, is < 0.001. Given the 5% significance level, this means that the macroeconomic condition of Nigeria, as represented by the independent variable in the model, have a significant impact on the net migration rate in Nigeria. This results in the rejection of the null hypothesis of the model, in this paper.

V. CONCLUSION & RECOMMENDATION

The findings reveal that among the different variables and indicators of the macroeconomic condition of Nigeria, real GDP per capita and unemployment rate are the variables with a significant impact on the net migration rate of the country. The negative relationship between real GDP per capita and net migration shows that as real GDP increases, net migration reduces, implying that there is more emigration than immigration. This could result from two factors. Firstly, it could be as a result of a high level of income inequality or unequal distribution of income, which limits the trickledown effect of such prosperity, thereby having no impact on the desire or decision of Nigerians to remain and reside in Nigeria. Secondly, it could be a result of the existence of other factors that are not related to the macroeconomic conditions, which plays a major role in the decision to emigrate. Therefore, to improve the net migration rate of Nigeria and curtail the loss of human capital and brain drain that currently plagues the country, the government needs to ensure that policies and systemic measures create a better trickledown effect of economic prosperity are implemented while ensuring a reduction in income inequality. Additional research also needs to be conducted to identify the non-economic variables that play a significant role in driving the decision to immigrate to or emigrate from Nigeria.

The positive relationship between unemployment and net migration, which suggests that an increase in the unemployment rate causes immigration to increase at a higher rate than emigration, should be a cause of concern for the Nigerian government. This means that efforts to create more jobs will and reduce unemployment will only result in a reduction in net migration (by an increase in emigration at a higher rate than immigration), and will not solve the problem of brain drain and human capital loss. Again, this points to the fact that while the unemployment rate is an important factor in the net migration pattern in Nigeria, other factors are equally critical and drive the decision to migrate. This calls for primary research aimed at identifying the non-economic drivers in the decision to migrate to or from Nigeria, in line with the modern theory of migration.

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