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The Macroeconomic Impact of Remittances on Economic Growth in Nigeria: An Econometrics Analysis

Gisaor Vincent Iorja

Department of Economics, Federal University Wukari – Nigeria
E-mail: gisaor vincent <gisaorvincent@gmail.com>

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Abstract: Nigeria is reportedly the 7th biggest beneficiary of money remitted to the home country by her citizens living and working abroad. It was expected that the money would not only provide reliefs for the households in meeting their basic needs but would also facilitate the building of resources required for increased human capital through education, health care, increased physical and financial investments in residential real estate and starting up small businesses. On that basis, this paper examined the macroeconomic impact of remittances on economic growth in Nigeria between 1970 and 2019 using the Autoregressive Distributive Lag Model (ARDL) and other econometrics test. The result shows that remittances, foreign direct investment and private investment have positively influenced economic activities in Nigeria during the study period. As such, the Nigerian government was urged to formulate appropriate fiscal and monetary policies aimed at stabilizing these rates for improved economic activities in Nigeria and diversification of the Nigerian economy should give priority attention to manufacturing activities. All remittances accruable to the country should be applied to boost manufacturing. This would boost employment, revenue and GDP growth for a more sustainable development of the country.

Keywords: Macroeconomic, Impact, Remittances, Economic Growth, Nigeria

JEL Classification: C5, C58 & D53

1. INTRODUCTION

In economics, migration refers to the movement of labour force from one economic region to another. Migration can produce certain benefits to the migrants at both national and international level (Kubuza, 2019 and Adeyi, 2015). These benefits of migration are more felt by underdeveloped economies relative to developed ones due mainly to the incidence of poverty, security challenges, unemployment, rural urbanization, downsizing of productive organizations, ethno-religious conflicts and refugee population and movements prevalent in underdeveloped countries (Oluyemi, Fayomi, Dominic, Azuh and Ajayi, 2015). In Africa, labour migration started in the continent long time ago owing to the increasing dynamics of the cultures of Africa. As such, several forms of migration have been recorded in Africa. They include the global migration, regional migration, sub-regional migration and inter/intra-continental migration.

Migration may be voluntary where relocation of people to new areas is done wilfully for better economic opportunities or it may be coerced or forced migration where people migrate in response to certain conditions beyond their immediate control such as disaster, war, erosion, earthquake, and other natural catastrophes (Nahla, 2015 and Adeyi, 2015). African countries have lost a substantial number of skilled personnel through emigration in what is popularly called the *"brain drain"*, mainly caused by the pushing factors such as low pay, unemployment, endless conflicts and economic stagnation at home (Oluyemi *et al,* 2015).

One of the benefits of labour force migration is what is termed as remittances. Migrants' economic remittances have become an important and growing source of international revenue for many underdeveloped countries. There is evidence from economic literature to show that remittances flow has increased in the recent past and constitute a large source of foreign income relative to other financial flows. World Bank (2019) officially recorded remittances to underdeveloped countries of $334 billion. This goes to show that despite the global economic crisis and even the ravaging effect of COVID-19 pandemic which broke out in late 2019, remittances flows to underdeveloped countries have remained resilient, posting an estimated growth of 8% (World Bank, 2019).

Nigeria is reportedly the 7th biggest beneficiary of money remitted to the home country by her citizens living and working abroad particularly between 2012 and 2018 (World Bank, 2019). It was expected that this figures would not only provide reliefs for the households in meeting their basic needs but would also facilitate the building of resources required for increased human capital through education, health care, increased physical and financial investments in residential real estate and starting up small businesses. All these expectations according to Elton and Dennis (2015) were not met in Nigeria rather, the mono-cultural economy has continued to remain dependent on import including refining petroleum.

From empirical perspective, scholars such as Adeyi (2015), Ukeje and Obiechina (2013), Adams and Page (2005) and Ratha (2003) have pointed out positive impact of migrant remittances on the balance of payments in many developing countries as well as enhancement of economic growth, via their direct implications for savings and investment in human and physical capital and, indirect effects through consumption. Conversely however, the works of Elton and Dennis (2015), Adaegbo and Ayansola (2014) and Udah (2011) provide empirical evidence that remittances rather undermine productivity and growth in low-income countries as they are readily spent on consumption rather than on productive investments.

Therefore, there is both practical and empirical gap that is begging for an answer hence the purpose of this research is to empirically establish how remittances inflow has affected the Nigerian economy at macro level using annual time series data from 1986 to 2019. Since there exist no conclusive empirical evidence on the true impact of remittances on economic growth and in particular the continued depression witnessed in Nigeria, the need to revisit the subject matter is highly justifiable. For clarity of purpose, the paper is organized in sections including introduction, conceptual clarifications, methodology, data analysis and discussions and conclusion and policy recommendations.

2. CONCEPTUAL CLARIFICATION

2.1. Remittances

Remittances can been defined severally as monetary and non-monetary items that the migrants earn while working abroad and later send back to their family or their accounts in their country. Kubuza (2019 and Harrison (2003) in their analytical studies see remittances as the sum of workers' earnings and compensation of employees and migrants' transfer. The World Bank (2019) and International Labour Organization (ILO, 2001) provides an authoritative definition when they unanimously defined remittances are that portion of international migrant workers' earnings sent back from their home country of employment to their country of origin, and play a central role in the economies of many labour-sending countries. That entails that workers' remittances consist of goods or financial instruments transferred by migrants living and working abroad to residents of the home economies of the migrants. Remittances are only limited to the transfer made by workers who have stayed in foreign countries for at least one year, while workers who are self-employed are excluded (Ukeje and Obiechina, 2013).

There are three important aspects or components of remittances are emphasized to avoid the ambiguity surrounding the specific meaning of remittances. These components are workers' remittances, compensation to employees and migrant transfers (Adeyi, 2015). The first component is the workers' remittances that are usually provided under the current transfers contained in the current account of the balance of payments (BOP). It encompasses both goods and financial instruments transfers by migrants who stays and work in a foreign country for more than a year. It could be in cash or in kind from migrant to resident households in the country of origin (Adeyi, 2015).

In the words of Elton and Dennis (2015), compensation remittances could be financial remittances, social remittances and remittances in kind. Remittances are financial in nature when there is the inflow of cash and financial products. Cash includes money sent formally through banks and network of international Money Transfer Organizations (MTOs), and also conveyed through informal channels. Financial remittances could also be in the form of Diaspora bond receipts that are designed by the home countries to attract funds from the Diaspora. The Diaspora bonds provide social remittances to their local communities in the areas of health, education as well as infrastructure through the donation funds.

On the other hand, a social remittance occurs when migrants are allowed to speak directly to a family member about different types of politics and encourage them to pursue reforms (Nahla, 2015). In such a case, financial ideas are conveyed personally to a particular group of people. The people are clearly guided on why and when they can change their priorities and include new items and problems to be funded. Remittances are said to be in kind when outright goods are sent from abroad to home countries of migrants (Adaegbo and Ayansola, 2014). They can be clothing items, electronics equipment, books, and automobiles. The view about remittances that is adopted in this study relates to monetary and non-monetary assistance sent from the Diaspora to aid economic activities in the country of origin.

2.2. Economic Growth

Economic growth is a subject which attracts a lot of attention, because it is taken as an indicator of the rate at which living standards is changing. Jhingan (2005) defines economic growth as an increase in the capacity of an economy to produce goods and services compared from one period to another. It can be measured in nominal term, which include inflation, or in real term, which are adjusted for inflation. However, Miller (2000) observed that for several reasons measuring economic growth with the use of GDP and GNP is incomplete. This is because it is difficult to account for the introduction of new products and that there is no direct relationship between GDP and happiness. Leisure and externalities such as pollution and congestion are usually not considered while measuring GDP or GNP. Economic growth can be actual or potential growth (Todaro, 2000). Actual economic growth is the percentage annual increase in national output also known as the GDP. This is said to be the rate of growth in actual output produced. On the other hand, the potential growth is how quickly the economy could grow. It is the percentage annual increase in the economies capacity to produce.

One of the most important features of economic growth is its cumulative nature-it is a compound interest type of process. Quite small percentage growth rates have very great absolute effects in the longer term (Todaro, 2000) hence Milton (1980) views economic growth as the rate of increase in an economy full employment, real output or increases overtime. Secondary, he defined economic growth as the rate of increase in and economy per capita, full payment in real GDP or GNP overtime. He expresses economic growth as the increase in total full employment real GDP or GNP. Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another (Miller, 2000).

2.3. Determinants of Economic Growth

The process of economic growth is determined by two types of factors; economic and non-economic factors. Economists regard factors of production as the main economic factors that determine growth. Some of the economic factors are explained below;

(i) **Natural resources:** The principal factors affecting growth of an economy is the natural resources or land. Land as used in economic includes natural resources such as the fertility of land, its situation and composition, forest wealth, mineral, climate, water resources, sea resources, etc. a country which is deficient in natural resources will not be in a position to develop rapidly. As outlined by Lewis *"other things been equal, men can take better use of rich resources than they can of poor"* (Toadro, 2000).

(ii) **Human resources**: This includes the size of the population i.e. the size and quantity of labour force of a country. Apart from the size of the country's population, the size and quantity of the labour force are important factors in determining the economic growth. For instance all things been equal, a larger labour force implies more productive man power, while a larger overall population increases the potential size of the domestic markets. However, labour efficiency which can be achieved through education and training is believe to promote sustainable economic growth than a mere increase in the size of the population (Todaro, 2000).

(iii) **Capital formation and accumulation:** This can occur when some percentages of present incomes are saved and invested in order to increase future output and incomes. For instance new factories, machinery, equipment and materials increase the physical capital stock of a country and enhance output levels (Jhingan, 2006). The developed nations are better-off because they have high saving which makes it possible to invest more in capital equipment, while low saving in the LDCs reduces investment in capital equipment hence exposed to low rate of economic growth.

(iv) **Technological progress;** Technological progress has to do with new and improved ways of doing things or accomplishing traditional task such as growing crops, making clothes, building of houses etc.

(v) **Entrepreneurship:** It is one of the determinants of economic growth. He organizes the other factors of production and undertakes risks and uncertainties. According to Jhingan (2006) the entrepreneur is not a man of ordinary ability, but an economic leader who possess the ability to recognize opportunities for successful introduction of new commodities in the market.

(vi) **Structural changes**; Structural changes imply the transition from a traditional agricultural society to a modern industrial sector involving a radical transformation of existing institutions, social altitudes and motivation such as structural higher labour productivity and the stock of capital, exploitation of new resources and improvement in technology.

2.4. Impact of Remittances on Economic Growth in the Underdeveloped Countries

Statistical data from the World Bank (2019) has summarized the impact of remittances on economic growth in underdeveloped countries. That data particularly shows that globally, remittances to the country of origin are fast improving with a total monetary figure of $401 billion in 2018. The figure was forecasted to grow by additional $314 in 2025. The figures are meant to be used by undeveloped in varying areas of economic activity to better the welfare of their poor people. In addition to the monetary flows, remittances are also responsible for the continued human capital development across different economic sectors in undeveloped countries especially in health, education and gender mainstreaming.

The positive impacts are also seen from the increasing investments and expenditures made the benefitting households or the entire community. There is of course verifiable evidence that migrants in developed countries sent three times higher remittances to their countries of origin to ensure that maximum benefits accrue to their local communities. Report of the World Bank (2013) reported countries like Nigeria, India, China, Philippines and Mexico to have received the greatest benefits of migrant remittances of all the countries in the world in the year 2012. The data specifically reported a combined $197 billion was remitted to these underdeveloped countries in 2012. In statistical term, the remittances represented almost 20% of the GDP in these countries.

Pertinently too is the fact that since the 1980s, attention has been shifted from the microeconomics impact of remittances structured towards the role information and social interactions in explaining the behaviours in transfer to macroeconomics effect centered on short run and long run effects using the framework of static trade models (Nahla, 2015). Attention has been fully focused on dynamic long run effect of remittances in eradicating inequality, poverty and total underdevelopment in the benefitting countries (Adeyi, 2015). It is in line with this renewed attention that has given impetus to this research with specific focus on Nigeria.

Nigeria occupies a very unique and significant position amongst underdeveloped countries with huge population alongside escalating levels of inequality, poverty, income fluctuations resulting from structural unemployment, market imperfections, rudimentary capital and money market which may hinder the needed investment in education and migration trends (Adaegbo and Ayansola, 2014). As a result of the huge population and labour movement, remittances inflows into Nigerian economy have been shown to improve tremendously over the years. In 1986, Nigerian migrants remitted atleast $20million, but as of 2012, the figure increased significantly to $21 billion and further increased to $41 in 2018 (World, Bank, 2019).

Essentially, majority of financial flows into Nigeria were reportedly spent on the basic needs of survival such as food, clothing, shelter and health (Adeyi, 2015). In other words, majority of remitted funds in Nigeria was used for consumption of basic goods and services with the hope of lifting the huge population out of pervasive poverty. It is however, disheartening to know that despite the accrual of remittances and other government interventions, economic growth measured by GPD growth and GDP per capita has remain comparatively low in Nigeria. Poverty and unemployment have continued to ravage the population alongside other economic ills.

The application of circular migration used as a relief for countries with growing population such as Nigeria, has been applied only to the benefit of surplus labour without any positive economic impact (Elton and Dennis, 2015). Theoretically however, the circular migration is reported to have a number of positive advantage on both origin and destination countries. It enables the destination country to meet labour shortages in a flexible way and address shortages that are seasonal or short term for the origin country (Nahla, 2015). It can be a notable strategy for relieving labour surplus. The circular migration of the Nigerian diasporas may have enhanced their income, skills, experience and create opportunities for members of the family, and retain their valued cultural heritage but the positive home impact cannot not clearly ascertained hence the need for an empirical investigation.

3. THEORETICAL FRAMEWORK

There are some theories that give better insight into migration and remittances and how they affect macroeconomic performance. Some of these theories are reviewed here to further enhance understanding. The Neo-classical migration theory popularized by Taylor in 1999 has completely jettisoned the idea of any possible benefit from migrant population on the home country. The theory sees migrants only as self-seeking and utility maximizing individuals whose motive of migration is to better their lot and not any community or nation. This implies that there is no place for financial remittances inflow to home countries that warrant any meaningful economic discourse.

The cumulative causation migration theory championed by Baldwin in 1970 took a very pessimistic view that migration worsened the problems of underdeveloped countries. That the brain drain remains the worst evil of emigration as it is capable of creating perpetual dependency on foreign countries. Migration undermines regional and local economies by depriving communities of their most valuable labour force, increasing their dependence on developed countries in areas such as health, education, sports, music and technology.

The developmentalism migration theorists such as Adler (1981) and Papademetriou (1985) conversely see the retuned migrants as important agents of innovation and change. Consequently, it was the contention of the theorists that the migrants do not only send back money home, but also new innovative ideas, knowledge, and entrepreneurial skills that can spur development in the home country.

As such, migrants are very capable of playing significant role in the economic transformation and accelerated development.

The theory of remittance is associated with the works of Lucas and Stark (1985). The theory postulates two notions about migration. That is altruism and self interest. The foremost reason why money is sent home by immigrants is known as altruism. Self interest occurs when the migrants are only interested in their personal benefits such as income, skills acquisition. Here, any remittance inflow is only a matter of policy and diplomatic state relations. This is the best theory accepted and adopted for this study for it has captured most of the anticipated benefits from remittances and has remained the greatest expectation for most countries whose population migrate to work and earn a living in foreign countries.

4. METHODOLOGY

The research design employed by the researcher is *ex post facto* research which aims at determining or establishing or measuring the relationship between one variable and another or the impact of one variable on another. The study relied only on secondary annual time series data covering 1970 to 2019; the period marked a phase of high level of remittances through the introduction of the second national development plan which laid more emphasis on the manufacturing sector in Nigeria as the centre stage for commencement of increased manufacturing output in Nigeria. The data was obtained mainly from the Central Bank of Nigeria (CBN) statistical bulletin, National Bureau of Statistics (NBS) various issues, CBN Annual Reports and Statement of Accounts.

Rooting the methodology on the Neo classical migration theory and the remittance growth theory, a simple relationship between remittances and real GDP is specified as:

$$RGDP = f\ (REM) \tag{1}$$

Where, RGDP = Real GDP and REM = remittances. Equation (3.1) is simply a non-stochastic relationship which implies that all changes in the real GDP are accounted for by changes in REM. However, the value of REM is also influence by many factors just as Real GDP is influence by varying factors. Following Kubuza (2019) and Nahla (2015), the relevant econometrics model for estimation is specified in a stochastic manner as follows:

$$RGDP = a_0 + \beta_1 REM + \beta_2 FDI + \beta_3 CPI + \beta_4 EXR + \beta_5 PINT + \varepsilon \tag{2}$$

Where RGDP = Real Gross Domestic Product, REM = Remittances Inflow, FDI = Foreign Direct Investment, CPI = Consumer Price Index, EXR = Official Real Exchange Rate, PINT = Private Investment and μ = Stochastic Error Ter. An ARDL representation of long run equation (3.2) can be specified as follows:

$$\Delta LRGDP = a_0 \sum_{i=1}^{p} a_{1i} \Delta LRGDP_{t-1} + \sum_{i=1}^{p} a_{2i} \Delta REM_{t-1} + \sum_{i=1}^{p} a_{3i} \Delta FDI_{t-1} + \sum_{t-1}^{p} a_{4i} \Delta CPI_{t-1}$$
$$+ \sum_{t-1}^{p} a_{5i} \Delta EXR_{t-1} + \sum_{t-1}^{p} a_{6i} \Delta PINT_{t-1} + \lambda ECM + \zeta \tag{3}$$

All the variables are as already defined above

4. ANALYSIS AND DISCUSSION OF RESULTS

Table 1: ADF Unit Root Test

Variables	*ADF Test Statistic*	*0.05 Critical value for ADF Statistic*	*Order of Integration*
RGDPD	0.032657	-2.926622	-
(RGDP)	-6.129609	-2.929734	I(1)
REMD	0.518531	-2.922449	-
(REM)	-5.361742	-2.923780	I(I)
FDID	-400.6815	-2.936942	I(0)
(FDI)	-11.42412	-2.941145	-
CPID	-3.767008	-2.922449	I(0)
(CPI)	-7.096715	-2.925169	-
EXRD	0.941885	-2.922449	-
(EXR)	-6.674677	-2.923780	I (1)
PINTD	-3.166831	-2.936942	I(0)
(PINT)	-3.206510	-2.941145	-

Source: Author's computation using Eviews 10.0

The result of the unit root test using Augmented Dickey-Fuller (ADF) approach was presented in Tables 1 above. The result shows that the following variables – RGDP, REM, and EXR were not stationary at levels while FDI, CPI and PINT were stationary at levels. The series after first difference became stationary at 5% level of significance but with a mix order of integration. Thus, with all the variables not integrated of the same order but have revealed a mix combination of I (0) and I (1) as shown in the result of ADF unit root test, the use of Johasen co-integration test has collapsed. The most appropriate choice left now is the ARDL bound co-integration to examine the existence of long run relationship amongst the variables in the model.

Table 2: Result of the Bound Test

F-statistic	*Alpha Level*	*Critical Bound*		*Decision*
		Lower Bound	*Upper Bound*	
3.968	5%	2.62	3.79	Co-integrated

Source: Author's computation using Eviews 10.0

Table 2 above indicates the calculated F-statistics of 3.968. Given the upper bound critical value of 3.79 which is less than the F-statistic, the null hypothesis of no co-integration is rejected, implying long-run co-integration relationships exist amongst the variables. This leads to the estimation of the long run relationship and the associated short-run dynamics.

Table 3: Estimated Long Run Coefficients: ARDL (1, 0, 2, 1, 4, 2) selected based on Schwarz Bayesian Criterion

Dependent variable is RGDP
Estimated from 1970 to 2019

Regressors	*Coefficient*	*Standard Error*	*T-Ratio*	*(Prob)*
REM	0.60	0.01	0.79	0.40
FDI	0.30	0.33	0.51	0.61
CPI	-2.37	2.69	-0.22	0.82
EXR	-1.48	2.35	-2.03	0.05
PINT	0.05	0.04	1.29	0.20
C	-20.83	30.66	-0.67	0.50

Source: Author's computation using Eviews 10.0

Table 3 contains the long run ARDL coefficients. The result of the long-run estimates of the ARDL revealed REM, FDI, and PINT to be positively related with the RGDP in Nigeria while CPI and EXR to be negatively related with RGDP in the long-run. REM, FDI, and PINT are clearly the main determinants of economic growth in Nigeria during the period of the study. Remittances have become a major source of income in Nigeria but as shown by the result, it is not yet significant in influencing economic activities in the country. It is required to be statistically significant for massive influence on economic growth and development to be noticed.

Table 4 Error Correction Representation for the Selected ARDL Model ARDL (1, 0, 2, 1, 4, 2) selected based on Schwarz Bayesian Criterion

Dependent variable is RGDP
Estimated from 1970 to 2019

Regressors	*Coefficient*	*Standard Errors*	*T-Ratio*	*(Prob)*
REM	11.14	6.035	1.912	0.066
FDI	10.11	6.564	1.707	0.099
CPI	-0.749	0.029	-3.264	0.027
EXR	-0.024	0.033	-0.794	0.433
PINT	0.059	0.022	2.625	0.014
ECM(-1)	-0.126	0.027	-4.594	0.001

R-Squared 0.502 S.E. of Regression 43.94 DW-statistic 2.212F-Stat. & Prob. 3.235 (.005)
Source: Author's computation using Eviews 10.0

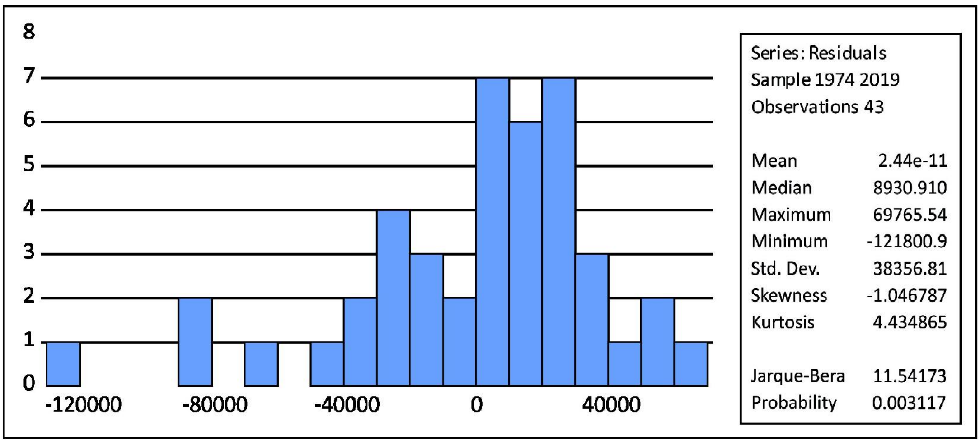
The results of the short-run dynamics associated with the ARDL (**1, 0, 2, 1, 4, 2**) presented in Table 4 above revealed the coefficient of the lagged error correction term (-0.126) to be negative and statistically significant at 1% level. The negative coefficient is an indication of co-integrating relationship among the variables. The magnitude of the coefficient implies that about 12.6% of the disequilibrium caused by previous year's shocks converges back to the long-run equilibrium in the current year.

The Durbin-Watson statistic of 2.212 shows positive serial correlation but within the normal bound of 2. The coefficient of multiple determinations (R^2) is 0.502 indicates that about 50.2% of total variation or a change in the present value of RGDP is explained by changes in the explanatory variables in the model while the remaining percentage is explained by other factors not explicitly captured in the model.

The REM, FDI and PINT remain positively related to the RGDP in the short run and the model variables are as well statistically significant at 5% level of significance in line with the findings of Ugboho (2019). This entails that these variables remains the greatest motivators of economic growth in Nigeria and may remain so during the outbreak of COVID-19. A serious positive policy reaction is required from the Nigerian government considering the ravaging effect of COVID-19 pandemic on economic activities and the need to spur the needed growth.

4.1. Normality Test

Figure 1: Normality Test of Significance at 5%



The stability is followed by normality test presented in figure 4.1. The figure shows the series to be normality distributed with negative skewness. Kurtosis was shown not to produce the asymmetric quality of the expected value of 3. However, the Jarque-Bera test was seen to produce significant probabilities at 5% level. This is a further confirmation of the normal distribution of the time series data used for estimating the result.

5. CONCLUSION AND RECOMMENDATIONS

Remittance is an important instrument of economic growth in Nigeria and in any country of the world. The Nigerian economy has an internal capacity to produce and manufacture virtually for local consumption and export but is not properly industrialized. If properly reinvigorated, then foreign remittances remain the key strategy to economic diversification in Nigeria. On this ugly note, the following policy recommendations are made for implementation by the government and policy makers in Nigeria.

(i) Nigeria requires a comprehensive reform programme in the production sector of the economy to ensure sustained productive activities in the country using remittances for sustainable economic growth and development.

(ii) The rate of exchange and inflation all have a negative effect on economic growth in Nigeria. Consequently, the government must formulate fiscal and monetary policies aimed at stabilizing these rates for improved economic activities in Nigeria.

(iii) Concrete monetary and fiscal policies and other non monetary-fiscal policies are all required to stabilize exchange rate and price level in the country.

(iv) The flow of FDI should be encouraged and accordingly applied in the manufacturing sector the sector should be granted soft loans at low and comfortable interest rate with the motive of increasing general manufacturing activities in the country.

(v) The poor performance of manufacturing can be further mitigated if the level of technology in Nigeria is improved. Manufacturing is purely a technical event as such; the present technical knowhow in Nigeria is too poor.

(vi) The government should properly diversify the Nigerian economy given priority attention to manufacturing activities. All remittances accruable to the country should be applied to boost manufacturing. This would boost employment, revenue and GDP growth for a more sustainable development of the country.

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