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## Remittance inflow and unemployment in Nigeria

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# A G D I Working Paper

WP/20/103

## **Remittance Inflow and Unemployment in Nigeria**

Forthcoming: Iranian Economic Review

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**Remittance Inflow and Unemployment in Nigeria****Godfrey I. Ihedimma & Godstime I. Opara**

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**Abstract**

Nigeria is unarguably one of the countries with its citizens widely spread across the globe and the income earned forms a huge chunk of remittance back to Nigeria. The study focuses on what implications remittances may have for unemployment in Nigeria. Remittance is treated as being endogenously determined by the number of migrants, the nominal exchange rate (with the Naira as local currency), the inflation rate and the migrants' income. Data from 1981 to 2019 is calibrated for structural break points and stationarity under conditions of regimes changes. While the data was found to have been affected by regime changes and stationary in levels, an Instrumental Variable Regression model was estimated and it was found that remittance positively and significantly influence unemployment. However, when remittance is interacted with the dependants in Nigeria, unemployment is observed to fall. The study strongly recommends that fiscal planning should take an account of the inflow of remittances when curbing unemployment. The study further recommends that there is the need to deliberately encourage a rise in the demand for the Naira as this would protect the value of locally produced goods from being eroded by remittances.

**Keywords:** Remittance, Dependant, Endogenous, Financial Openness, Unemployment, Interaction, IV Estimation

**JEL Classification:** F24, J61, O15

## **1. Introduction**

Nigeria is unarguably one of the countries with its citizens widely spread across the globe. Many Nigerians as with other Africans travelled especially to Europe and America during the pre-independence and post-independence era, majorly for educational attainment. Most of these scholars were retained after the completion of their educational programme and soon started earning income in foreign currency. The unskilled Nigerians too were not left out, as with time, they too found a place in the labour market as menial workers, even with little or no education. This increases the number of migrants in diaspora such that according to Bah, Cisse, Diyamett, Diallo, Lerise, Okali, Okpara, Olawoye and Tacoli (2003), the fraction of migrants in southern Nigeria alone as a total percentage of the total household, range between 50 to 80 percent while Mohapatra, Ratha and Silwal (2010) opines that Nigeria is the highest recipient of remittances in Africa as she accounted for \$10 billion in 2010 alone.

Nigeria being a country with diverse of cultures and tribes, with population spanning up to an estimated 182,201,962 people and a population growth of 2.62% both for 2015 as recorded in the World Bank Group (WBG), (2016) is thus the most populous black country as argued in some quarters. With a teeming population as such, and a population density of about 200 people per square kilometre (WBG, 2016), Nigeria has just about enough to fill 911,009 square kilometres of the world. According to Pidwirny (2006), the world has a total landmass of 148,939,063.133 square kilometres, Nigerians at 200 per square kilometre would cover up about 0.6% of the world. This makes it plausible for an argument to be raised that there could almost be a Nigerian in every part of the world.

Nigeria is reported by the World Bank (2016) to have 100,000 of her population forming a top source country for Refugees in 2014. She is a top emigration country of tertiary-educated number of migrants and is also among the top 10 recipient countries of remittances in the world to the tune of about \$20.8 billion with the US to Nigeria taking 5.7% of this total while the UK to Nigeria taking 3.7%, yet the country wallows in unemployment as revealed by her unemployment statistics for 2016, estimated at 12.1%. Remittance forms an alternative source of income for many households in Nigeria, from which planned expenditure is made. In some quarters, it is argued that migrants' remittances surpass the Official Development Assistance (ODA) in most developing countries. Studies like Ratha (2003) lay claims to remittance being above ODA with ODA recording about \$57 billion while remittances record \$72.3 billion in 2001.

Ojapinwa (2012) further reiterates that official remittance alone was 20% above ODA in some countries like Nigeria between 1980 and 2005, much more than Foreign Direct Investment (FDI) in some other countries like Morocco. This buttresses the argument that remittance no doubt has become a culture in developing countries with less attention though paid to its possible significance over the years.

Economies are visited with the business cycle, and Nigeria is not left out. Business cycles are notorious for changing consumption patterns, as in recessions, households tend to consume less on the aggregate due to lower incomes, thus reducing aggregate demand while in economic prosperity, households spend more and save more. The aim of the consumer is basically to spread his consumption such that at every point in time, he has income or what is left of it (savings) to meet up with his needs. With remittance, households smoothen their consumption given that remittance is countercyclical, thus enabling migrants repatriate funds to family members in periods home country (Nigeria) is in economic recession. This enables the smoothening of consumption or countering the business cycle fluctuations. Lowell and Orozco (2005) though explains that one significant factor that determines the decision to repatriate funds is the [nominal] exchange rate as migrants take advantage of the higher parity.

A look at the labour force reveals that Nigeria has a total labour force of 55,784,248 (WBG, 2016) for the year 2014 which if compared to her population in 2014 (177,475,986), registers about 31.43% of the total population. In 2015 alone, migrants out of Nigeria was recorded at 0.658% of the total population (WBG, 2016), which suggests that the remittance of \$20,829,173,623 in 2015 was repatriated by a small fraction of the population [less than 1%]. This dampens the thought of direction of relationship between remittance and unemployment as studies like Asad, Hashmi and Yousaf (2016), Rahman, Mustafa, Islam and Gharan (2006) found negative relationship between remittance and unemployment in Pakistan and Bangladesh respectively. This also poses a more serious concern over the findings of various studies which supports how remittance makes or mars the unemployment figures in Nigeria which most likely implies the non-complacence of researchers over the years as vagaries of results have still not laid to rest the exact influence remittances have on unemployment.

Meme & Madueme (2016) records that foreign exchange reserves over time steadily was on the rise from 2001 till in 2008 when it started dropping. A connect drawn between remittance and foreign exchange reserves with remittance as a major source (Morgan, 2014), beclouds

judgement of whether remittance improves the economy's stability because between these periods, the World Bank (2016) records remittances was steadily rising. With the foregoing, it could be seen as plausible to make arguments that should more of the labour force leave the country, output and thus aggregate production has likelihood of reducing such that a decrease in output is invariably an increase in unemployment. Remittance can only rise with migration, but can also make the inhabitant labour force lazy and unproductive as a result of receipts of bequests and other (non)pecuniary benefits which also increase unemployment too. This study thus incorporates the interaction of remittances with other macro variables through which remittance gets to the local economy (Nigeria in this case), as well as principal factors considered which spur the intention to make remittance, in analysing the communion of both variables as the relationship and impact obtainable in the Nigeria scenario remains hazy.

## **2. Literature Review**

### **2.1 Theoretical Literature**

Remittance is recognised as repatriation of income by migrants to their home country. This repatriation is mostly a cumulative of part income over a period of time for the purpose of local spending. Remittance goes beyond financial remittance, as there also are other forms of remittances which are all encompassed in Social Remittance. These include innovative ideas, social capital, cultural influences and technology transfers from citizens in diaspora to those at home. These shape the lifestyle of the home relatives of those in diaspora. The theory of remittance underlines three major theories which are *The Portfolio Motive*, *The Altruistic Motive* (IMF, 2005) and *The Loan Repayment Motive* (Solimano, 2003).

The portfolio motive explains how migrants send remittances in a bid to diversify their earnings thus taking into account, risk. Here, remittances are sent to acquire new assets – tangible or intangible – such that the migrant's wealth is not vulnerable to risks and benefits from the foreign country alone, thus the diversification. The altruistic motive on the other hand is borne out of the benevolence of the migrant to his relatives back home. This way, the beneficiaries are expected to have economic relief from the remittance as funds gained is used both for the procurement of economic activities and its substitute – leisure. When the procurement of leisure surpasses viable economic activities, beneficiaries relax [to some extent] from work. The third motive stems basically from the need to repay the migrant's

initial sponsor(s). Most migrants are sponsored out of their local homes in a bid to get better or further education as the case may be, employment and then eventually earn income. These could in most cases be funded out of relatives' assets. The repayment motive ensures that relatives' assets are refunded via the remittance. The only issue with this form of repayment is that since the interest rates are not spelt out in most cases, repayment [that is, the remittance] depends on faith in the migrant.

Karl Marx in his 1863 publication is attributed to having posited that it is in the very nature of the capitalist mode of production to overwork some workers while keeping the rest as a reserve army of unemployed paupers. For Marx (1863), the system's propensity to reduce wages and labour participation causes a requisite decrease in aggregate demand in the entire economy which has resultant unemployment and successive periods of fall in economic activity just before there could be rise in investment. Marx argues further that unemployment is a feature of capitalism as he tagged it an unstable system marred by periodic crises of mass unemployment. Given the social stratification as revealed by Marxian economics, the proletariat who forms the reserve army of labour by virtue of being unemployed, cause a downward pressure on the reward for labour as they are either categorised as surplus labour or the underemployed, thus they scramble for the scarce jobs at even much lower prices – this way the downward pressure on the reward for labour.

This forms a benefit to the capitalists, in that, this economic occurrence does not increase profits, but lower costs, since jobs would be taken at much lower prices, thus reducing economic rents at the detriment if the workers. Given this underlying argument, Marx proposes in Dialectic Idealism that the only way to abolish unemployment is to abolish the capitalist system of production in tandem with the forced scramble for wages with a shift to a socialist [communist] system, thus revealing the persistence of unemployment being a result of the incapacitation of capitalism to attain full employment.

Hovering over to unemployment, the Classical economists believe unemployment occurs when the number of job-hunters surpass the available vacancies as a result of the real wages for the job set above the market-clearing level, thus viewing unemployment as the real wage unemployment. Some other economists argue that another cause for this might not just be the discrimination between real wages and market-clearing prices, but also the drop in wages below liveable wage that most employed workers decide to drop out of the labour market and thus do not seek employment any more as is commonly found in economies where families

are supported by [public welfare programmes. In reference to this, wages are set above the welfare programmes as incentives to attract the unemployed back into the labour market as against over reliance on the welfare package. Government regulation has also been argued to be another source of unemployment as it concerns the labour market. Minimum wage promulgations are believed to increase the cost of some labourers, especially the low-skill labour, thus disenfranchising them from labour participation since the new wage is now greater than the value of their labour. It also works out in the opposite when the minimum wage is not minimum enough. It causes the reduction in value of labour which discourages the supply especially for highly trained labour. Alain (2006) argues that laws restricting layoff could increase the propensity of businesses to hire because hiring is now a risk-prone venture.

The Keynesians argue unemployment on the premise of disparity between potential and actual unemployment levels. Keynes (1936) argues that the cause of unemployment is embedded in deficiency in demand, thus the referral of the Keynesian unemployment in recent times as the Deficient-Demand unemployment or popularly known as the *Cyclical unemployment*. This unemployment stems from the insufficiency of demand in tandem with inadequate aggregate supply. The demand for goods and services fall and as such there is less need for production which necessitates the acquisition of fewer workers. Since wages are sticky and do not fall immediately, there is a distortion in the equilibrium level in the commodity and labour market which results in mass unemployment.

Cyclical unemployment is believed to be a really bad form of unemployment because as argued in Keynesian economics, even at full employment, the number of unemployed workers far exceed that of the number of vacancies. This, Seymour (2005) explains quoting Keynes (1936) as the reflection of the business cycle – thus the name cyclical unemployment. The resolution to unemployment in this case is the government intervention aimed at increasing the supply of jobs.

Other forms of unemployment are the *Structural unemployment* which occurs as a mismatch between the skills of unemployed workers and the skills required for available jobs thus the labour market being incapable of providing jobs for everyone who needs a job. Harry (1934) highlights a more recent and common form of structural unemployment as the technological unemployment in which the increase in technological advancement displaces labourers from work. The other form to be discussed is the *Frictional unemployment*. This occurs between the time frames in which existing workers switch jobs. It is more common among new



graduates (that is, new entrants into the labour force) and re-entrants like nursing mothers. Other sources of this form of unemployment include the disparity in skills, payment structure, work hours, geographical location of workplace, seasonal industries and a myriad of other considerable heterogeneous factors.

## **2.2 Empirical Review**

### **2.2.1 Remittance and Fiscal Planning**

Kulaksiz & Andrea (2006) opines that household consumption accounts for at least half of remittance spending and can also be as high as two thirds while another fraction of it is spent on [small scale] investment. This underscores the role remittance could possibly play in fiscal planning. With stimulants of the aggregate economy stemming from the expenditure of the components of aggregate expenditure, household consumption as well as business investment expenditure can potentially be navigated via remittance inflows. This premise is corroborated by the study by Abdih *et al* (2009, 2011) in their findings that the presence of large and stable remittance inflows has capacity to shape the valuation of the variations precursory to fiscal sustainability in recipient countries. They also record though, that the fiscal space enabled by remittance inflows could result into moral hazard behaviour on the part of the government owed as a result of the impact of remittance on private consumption and imports

Remittances are though not directly taxed; it thus follows that their effect on tax revenue would be indirect which implies an impact via private aggregate demand. The size of the tax base would be affected through consumption, investment decisions and imports. Abdih, Barajas, Chami & Ebeke (2012) employed a reduced form model and found that the effect of remittances on sales tax revenue was positive as remittances were revealed to be strongly correlated with household consumption which in turn has impact on sales tax.

### **2.2.2 Remittance and Macroeconomic Stability**

The study by Lueth and Ruiz-Arranz (2007) was conducted in Sri Lanka. The authors employed a Vector Error Correction (VEC) model in analysing if remittances hedge against macroeconomic shocks and found that remittance receipts fall as oil prices softens while it increases as the Sri Lankan economy grows thus being procyclical. Their model reveals further that remittances responds to shocks from the GDP, exchange rate and oil prices. Their

study though verbally suggests the possibility of data used to contain structural breaks but never tested or accounted for it empirically.

Singer (2010) analyses the political economy of exchange rate regimes in 74 developing countries from 1982 to 2006 thus verifying the economic assumption that remittance inflows increases the probability that a country would choose a fixed exchange rate regime. His Ordered Probit Model revealed that remittance inflow is linked with the fixed exchange rate regime and the result was robust even in the presence of institutional, political and Optimum Currency Areas (OCA)-related macroeconomic variables. His results further revealed that remittances are major determinants of exchange rate policy and by extension influences policy making.

### **2.2.3 Determinants of Remittances**

Ordinarily, on the micro level, one would by intuition enquire what are the factors migrants might want to consider before making remittances, some of such factors could include taking advantage of the currency exchange parity (Dollar to Naira in the Nigerian case), the stability of the local economy as indicated by the inflation rate, moral obligation of the remitter, income of the citizen in diaspora, Human Capital acquisition of relatives at the local front [ranging from health to education], and even the financial development of the home economy as there may be difficulty repatriating funds. Of these mentioned, macro studies like Ojapinwa (2012) is devoted to examining what truly are the determinants of remittance in Nigeria. He found that migrants' remittance is significantly influenced by the economy's growth while population growth, trade openness, financial deepening and the labour market situation as measured by unemployment rate do not significantly determine remittance in Nigeria. Other variables he found significant were the Inflation rate [proxied by CPI], and the Debt-Income Ratio. Ojapinwa failed to account for the stationarity of his variables, thus having his model prone to the violations of the OLS assumptions as used.

Microstudies as Olowa, Awoyemi & Omonona (2012) found that internal remittances within rural Nigeria is influenced majorly by the number of educated members at the secondary school level, age of household head, the number of male over age 15 as well as land size. For remittances from migrants, they found from their multinomial logit model using data from the National Living Standards Survey, that households with more educated members at the university level, age of household head, the South-East, South-South, South-West and North-

East regions of Nigeria and then the land size are positive and significantly associated with the receipt of cross border remittance. For Nwosu, Fonta, Aneke & Yuni (2012), Nigerian households receive remittances on the premise of the consideration of migrants and household characteristics as well as the macroeconomic environment of the foreign country where the migrant resides. They further found that other factors as the migrants' educational attainment before migration, employment status of migrant in foreign country (i.e. paid or self-employed), economic stability of migrant-country, the sex composition of the migrants and the occupational behaviour of Nigerian migrants all contribute to the remittance decision of the migrants as well as the remittance inflow into Nigeria. This was the justification for the use of their Tobit model – an assumption that the decision to remit was not independent of the amount remitted.

This current study however, would take a macro approach to verifying the influence remittance has on unemployment in Nigeria while controlling for the channels through which remittance inflow is conducted, as well as the endogeneity embedded in the decision to remit – thus an assumption that actual remittance is not independent of some factors that necessitate its supply.

### **3. Methodology and Data**

Unemployment is only but a feature of a slowdown in aggregate economic activities but most times aggravated by certain factors. Remittance in this study is assumed to have effects on unemployment, but via some other factors. The amount remitted is thus influenced by decision to remit which makes remittance inflow endogenous. With such endogenous nature of the regressor stemming from the omission of variables considered in the decision to remit, instruments are thus sought to correct the endogeneity bias which stems from the specification. The instrumental variable regression technique according to Wooldridge (2013) obtains consistent estimators while recognising the presence of the omitted variable.

With much of the real reasons migrants make remittance being abstract, modelling such would involve immeasurable variables thus creating the omitted variable bias. The decision to remit would include the age of parents of the migrants, pursuit of social and human capital as health, education and leisure, and also the moral obligation to the migrant's home relatives. The remittance inflow would thus be a function of any of these. The cross-sectional model would thus be:

$$unem_i = \alpha_0 + \alpha_1 remt_i + \sum_{j=1}^n \pi_j x_i + u_i \quad \dots (1)$$

Such that  $\sum_{j=1}^n x_i = \pi_0 + \pi_1 agep_i + \pi_2 soci_i + \pi_3 humn_i + \pi_4 mora_i$

where *agep* = age of migrant's parents, *soci* = social capital pursuit, *humn* = human capital pursuit, *mora* = moral obligation of migrant to home relatives. The equation (1) can be re-specified thus

$$unem_i = \alpha_0 + \alpha_1 remt_i + v_i \quad \dots (2)$$

Such that the vector of variables is omitted due to the difficulty in measuring them for a macro analysis and encompassed in  $v_i$ . Instruments could thus be introduced into the model for remittance. They include; number of Migrants (*migr*), the Nominal Exchange Rate (*nexr*) with the Naira as local currency and the Dollar as the foreign currency, Inflation Rate (*infl*) and the Migrants' Income proxied by the Net Income from Abroad (*nicm*). Wooldridge (2013) advises that the conditions to have good instruments are that they must be uncorrelated with the error term [encompassing the omitted variables], but correlated with the variable being instrumented for – remittance inflow in this case. So, our modified model after controlling for macroeconomic determinants of unemployment would be as specified in equation (3).

$$unem_t = \beta_0 + \beta_1 lnremt_t + \beta_2 lnremt.finc_t + \beta_3 lnremt.depd_t + \beta_4 lnrgdp_t \\ + \beta_5 lninvs_t + \beta_6 lngcap_t + \beta_7 lnvalu_t + \beta_8 lnlabr_t + \varepsilon_t \quad \dots (3)$$

where *unem* = Unemployment Rate, *lnremt.finc* = the interaction of growth rate in Remittance and the Financial Openness of the country explaining the channel of the financial intermediaries through which remittance gets to the household, *lnremt.depd* = the interaction of growth rate of Remittance and the Dependency Ratio explaining the vulnerable members of household to whom greater percentage of remittance goes to on the premise that they are unaccounted for in the nation's employment. The macroeconomic variables used are *rgdp* = Real GDP, *invs* = Investment, *gcap* = Government Capital Expenditure measuring government's commitment to creating employment [invariably reducing unemployment], *valu* = Value from Agriculture as a proxy to new employment created in the agricultural

sector and *labr* = the nation's Labour Force. Data is sourced from the CBN, 2019 and the WDI, 2019 for the annual records of the aforementioned series ranging from 1981 to 2019.

## 4. Results and Discussions

### 4.1 Results

#### 4.1.1 Structural Break Test

The test results as conducted using the Quandt-Andrews structural break test for unknown breakpoints is presented in the Table 1 below. The null hypothesis to be tested states there is no breakpoints within 15% trimmed data. The test result shows that there are breakpoints for the series used and at different years as shown in the table 1 below.

**Table 1: Summary of Structural Break Test.**

Variable name	Max LR	F-Statistic	Break Date
<i>unem</i>	152.3120*		2013
<i>lnremt</i>	176.7381*		1993
<i>lnremt.finc</i>	147.1921*		1993
<i>lnremt.depd</i>	175.1909*		1993
<i>lnrgdp</i>	279.9440*		2004
<i>lninvs</i>	112.2083*		2007
<i>lngcap</i>	217.2512*		1995
<i>lnvalu</i>	250.8924*		2002
<i>lnlabr</i>	99.76609*		2000
<i>lnmigr</i>	72.10011*		2007
<i>nexr</i>	102.1744*		1999
<i>infl</i>	15.96756*		1997
<i>lnnicm</i>	137.1231*		1993

Source: Authors' Computation, 2020

\* significant at 5% level

#### 4.1.2 Unit Root Test under Structural Break

The Zivot-Andrews test accounts for the stationarity of the series used in cognisance of the presence of structural break [i.e. regime changes]. The results are presented in the Table 2 below.

**Table 2: Unit Root Test [in the presence of Structural Break].**

Variable name	Test Statistic	Break Location	Order of Integration
<i>unem</i>	-5.268165	C	I(0)
<i>lnremt</i>	-7.906061	C	I(0)
<i>lnremt.finc</i>	-5.325673	C	I(0)
<i>lnremt.depd</i>	-5.249094	A	I(0)
<i>lnrgdp</i>	-5.854578	A	I(0)
<i>lninvs</i>	-5.359158	C	I(0)
<i>lngcap</i>	-5.680928	C	I(0)
<i>lnvalu</i>	-9.654851	C	I(0)
<i>lnlabr</i>	-6.944581	A	I(0)
<i>lnmigr</i>	-6.675046	C	I(0)
<i>nexr</i>	-8.802016	C	I(0)
<i>infl</i>	-6.491895	C	I(0)
<i>lnnicm</i>	-7.033622	B	I(0)

**Source: Authors' Computation, 2020**

Break Location: A = Intercept; B = Trend; C = Both

The test results above reveal that the series used are stationary in levels, thus integrated of order zero [i.e. I(0)]. This satisfies the condition of the respective series having constant mean, constant variance and covariance, thus reliable for long-run forecasting.

#### 4.1.3 The IV Estimation

The estimation result of the model is presented in the table 3 below. The instrumental variable regression disallows imposition of the endogeneity condition imposed by the omitted variable bias as pre-stated.

**Table 3: Instrumental Variable (IV) Estimation Results**

Dependent variable: *unem*

Variable	Coefficient	Standard Error	z-value	p-value
<i>constant</i>	-872.325*	117.284	-7.44	0.000
<i>lnremt</i>	168.866*	32.221	5.24	0.000
<i>lnremt.finc</i>	-0.162	1.385	-0.12	0.907
<i>lnremt.depd</i>	-169.82*	32.133	-5.28	0.000
<i>lnrgdp</i>	6.312	4.300	1.47	0.142
<i>lninvs</i>	6.519*	1.106	5.89	0.000
<i>lngcap</i>	-7.297*	0.992	-7.36	0.000
<i>lnvalu</i>	-20.302*	3.510	-5.78	0.000
<i>lnlabr</i>	110.012*	9.241	11.91	0.000

**Source: Authors' Computation, 2020**

\* denotes rejection of the hypothesis at the 0.05 significance level

Given the level-log estimation, remittance was found to be positively and significantly related to unemployment in Nigeria. The test results further reveal that with 1 percentage point increase in remittance, unemployment is expected to rise by about 1.69 percentage point. The interaction of growth in remittance and the financial openness of Nigeria as measured by *lnremt.finc* has a negative though insignificant relationship with unemployment. This explains that with the financial intermediaries as a channel through which remittance gets to households, remittance reduces unemployment [considering the financial openness of the country]. Sadly, this finding is not significant at the 5% level and as such is not reliable. Remittance is believed to majorly be sent to the younger family members or the older ones, both of which fall into the group of Nigerians who are dependent. An interaction of the growth in remittance and the dependency ratio reveals that remittance reduces unemployment in Nigeria for this group. To this end, unemployment is expected to fall by about 1.69 percentage point for every 1 percentage point rise in remittance through the dependants.

The Real GDP in Nigeria was found to have a positive relationship with unemployment but not significant, while investment was found to grow significantly with unemployment in Nigeria and this finding was significant at the 95% confidence level such that with every 1 percentage point rise in the growth of investment, unemployment would rise by an estimated 0.065 percentage point. The finding has an implication that investment levels in Nigeria are retrogressive to job creation from the business sector. Government Capital expenditure is expenditure spent on the creation of new jobs, and this was found to be negatively related to unemployment in Nigeria. This relationship was also verified as significant. Its coefficient reveals that with every 1 percentage point rise in government capital expenditure, unemployment in Nigeria is expected to fall by 0.073 percentage point.

It was also true of the growth in the value added in the agricultural sector which measures the creation of jobs in the sector via expansion of inventory and capital. The variable's coefficient suggests that as value added in the agricultural sector rises by 1 percentage point, unemployment is expected to fall by 0.203 percentage point. Growth in labour force is positively and significantly related to unemployment in Nigeria. This could be tied, as an economic implication, to the non-productivity of the labour force such that labour is either underutilized or the marginal product of labour is negative – thus the increase in unemployment.

#### 4.1.4 Post Estimation Tests

The tests conducted to confirm the validity of the results are conducted in this section. The test results reveal that the model is not weakly identified given the Kleibergen-Paap rk LM statistic of 15.900 with a p-value of 0.0032. The Rank test concludes that the equation is over-identified as confirmed by the Hansen J Statistic of 3.039 with a p-value of 0.3856 such that the null of over-identification is not rejected. The table 4 below presents results of Orthogonality and Redundancy of instruments. The hypotheses being tested here include:

H<sub>01</sub>: The Instruments are uncorrelated with the error term (Test for Orthogonality condition)

H<sub>02</sub>: The Instruments are redundant (Test for Redundancy)

**Table 4: Orthogonality and Redundancy of Instruments used.**

Variable	Orthogonality Condition*	Orthog p-value	Redundancy **	Redund p-value*
<i>lnmigr</i>	2.994	0.084	6.883	0.009
<i>nexr</i>	2.485	0.115	11.810	0.001
<i>infl</i>	0.636	0.425	4.278	0.039
<i>lnnicm</i>	1.563	0.211	0.705	0.401

**Source: Author's Computation, 2020**

\* C-Statistic \*\* LM Redundancy Test Statistic

Since the orthogonality test verifies if the instruments used are strictly exogenous, the p-value of the respective instruments suggest the null hypothesis (H<sub>01</sub>) is not rejected, thus verifying the strict exogeneity of the instruments. The test for redundancy verifies is the inclusion of the instruments improve the estimation capacity of the parameter estimate of the instrumented variable (*lnremt*), the respective p-values suggests the instruments are not redundant since the null hypothesis (H<sub>02</sub>) is rejected except for the growth rate in Net Income from Abroad. To this end, it is concluded that the inclusion of this variable does not improve the ability of remittance influencing unemployment in Nigeria.

#### *Test for Heteroscedasticity*

The null hypothesis tested here is that the error term,  $\varepsilon_t$  is homoscedastic. The *Pagan-Hall* general test statistic of 4.144 with p-value of 0.9655 confirms the we do not reject the null hypothesis and thus conclude that the error term is homoscedastic.

#### *Test for Autocorrelation*



The null hypothesis tested here is that the error term,  $\varepsilon_t$  is not serially correlated. The *Cumby-Huizinga* test statistic of 0.14936739 with p-value of 0.69914064 confirms we do not reject the null hypothesis and conclude that the errors are non-autocorrelated at order 1.

#### **4.2 Discussion of Findings**

The relationship between remittance and unemployment in Nigeria is tested for, under the assumption that remittance first does not operate in a vacuum, and then that it is endogenously determined by migration, the exchange rate (with the Naira as local currency), inflation rate at the home country and income earned by Nigerian migrants in diaspora. The relationship between each aforementioned relationship is found to be significantly positive, which explains that more Nigerians would be plunged into unemployment should there be further rise in remittances from citizens in diaspora. This is while accounting for the instruments as used in the estimation. The channel however, through which remittance circulates the local economy was found to have no significant contribution to curbing unemployment, though the recipients of the remittance significantly are pulled away from unemployment given that they are already dependants. This explains that the influence of increase in unemployment for the non-dependants might be more pronounced as they would have to struggle to be engaged in local economic exchanges. This finding also has an economic implication that autonomous consumption from dependants would be significant enough to push the economy away from unemployment since the level of expenditure association with this age group is not particularly backed by income earned by themselves. Furthermore, unemployment would significantly be reduced if the autonomous component of household expenditure is funded by remittances.

The finding that growth in investment would increase unemployment goes a long way in explaining that local investment in an economy with increased remittances would not crowd out employment. Rather the influx of capital from abroad would likely be spent up on the excess supply in the economy which might not yield results for immediate job creation. This is corroborated by the finding that growth in real GDP does not mean a reduction in unemployment as recorded in the model estimation table and in studies like Isiaka (2017). Fiscal policy actions however would tackle unemployment as found that rise in government capital expenditure would reduce unemployment. This can also be said of the value added in the agricultural sector of the Nigerian economy. Lastly, labour force would only possess a

negative marginal productivity for unemployment to rise along with it. This is corroborated by O’Nwachukwu (2016).

## **5. Conclusions and Policy Recommendations.**

The study concludes that remittance would not significantly reduce unemployment in Nigeria, but would act as a fiscal stimulus if it gets to the relevant group of spenders – the dependants. Financial intermediaries do not significantly contribute to the reduction of unemployment while serving as a channel for remittance inflow. The study also concludes that the business sector would not significantly reduce unemployment through her expenditure as government expenditure is more potent against unemployment in Nigeria.

Given the discussions and conclusions of the study, the study makes the following recommendations, that fiscal planning should take an account of the inflow of remittances so as not to overshoot the actual national income much beyond its potential level, thereby causing an inflationary gap. Labour should be engaged in more training and offered better working conditions so as to improve the productivity. This would lead to a reduction in unemployment and a reduction in the account of underemployment in the country. Third, the agricultural sector should once again, as in the period before the oil boom, be considered as a means to curbing unemployment. Since government expenditure is already found to stimulate the country out of unemployment and the value added in the agricultural sector significantly reduces unemployment, the government can make deliberate expenditure in the sector to boost the economy’s productive capacity and tackle unemployment.

Fourth, there would be the need to deliberately encourage a rise in the demand for the Naira as this would protect the value of locally produced goods from being eroded by remittances and causing more unemployment. The study acknowledges there should be an increase in international migration for employment followed by remittance to the local economy, favourable business environments and low inflation rates for remittance to significantly tackle unemployment issues in Nigeria. This recommendation is spurred by the validation of the instruments used in the model estimation. To this end, the government and other economic agents as the household and international sector have roles to play in ensuring the Nigeria landscape gets the deserved attention necessary to spur her out of the problems of unemployment.

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