Are Migrant Remittances Positive or Negative for Economic Growth in Nigeria?

Jie Zhang   Yong Lin
(Maritime Silk Road Research Center, Fujian Academy of Social Science, Fuzhou, Fujian, China)
Corresponding Author: Yong Lin

Abstract: *Based on the data for Nigeria from 1977 to 2014, this paper uses co-integration analysis and ECM to explore the relationship between migrant remittances and Nigerian economic growth. Our result revealed that migrant remittances influence the economic growth of Nigeria positively in the short run but negatively in the long run. The most important reason for this is that Nigerian government has not developed an effective strategy for introducing and utilizing migrant remittances, which has led to the long-term prevalence of informal remittance channels and negative effect of migrant remittances. Our study also found that FDI produces a negative impact on economic growth both in the short and long run. which revealed the strategic flaw that the Nigerian government has long neglected the important role of FDI in Nigerian economy. Additionally, our study also found that export and ODA have long term significant positive effects on Nigerian economic growth, suggesting that to a certain extent openness can boost Nigerian economic growth.*

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I.   Introduction
Nigeria is the largest economy in Africa and the world's 20th largest economy (World Bank,2012,2016). The country is also home to nearly 170 million people (Fitzmaurice,2014). In the 1970s only a few thousand Nigerians went abroad to work abroad, but now Nigeria has become one of the largest labour exporters in the world, like China, India, Mexico and Pakistan, the total number of overseas Nigerians was 8.96 million in 2014, accounting for 12% of Nigeria's total population. The steady growth of emigration from Nigeria over the years is supposed to be favorable to the development of Nigeria (Efobi et al., 2016). Nigeria has also received a handsome amount of migrant remittances from residents abroad, and it's the largest remittance-receiving country in Sub-Saharan region and the world's fifth largest remittance-receiving country just next to India, China, the Philippines and Mexico(World Bank, 2014). Migrant remittances are a good source of capital for development especially in developing countries where capital supply is always in short supply. Nigeria has enjoyed rapid remittances growth, from 339 million U.S. dollars in 1977 to 28.5 billion U.S. dollars in 2015 (World Bank,2017), and hence migrant remittances have become an important aspect for socioeconomic advancement in Nigeria.
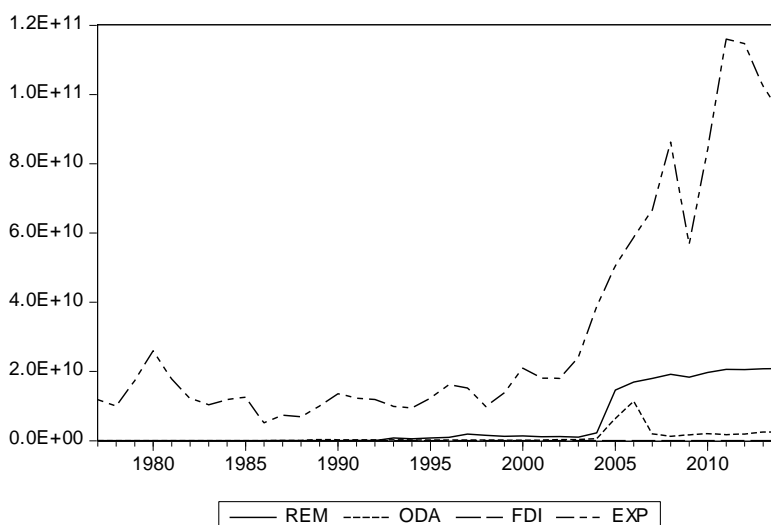

Figure 1: Development Trends of Migrant remittances, FDI, ODA and Exports in Nigeria, 1977-2014 (USD)
Source：World Bank , Migrant remittance inflows (US$ million),WDI (World Development Indicators)，October

2016，http://data.worldbank.org.cn/data-catalog/world-development-indicators

In the 1960s and 1970s most of the foreign capital flowing into Nigeria was government development assistance (ODA). In the 1980s, foreign direct investment (FDI) began to emerge in Nigeria. From the figure shown above, we can see that migrant remittances in Nigeria have increased rapidly since the late 1970s ,and since the mid-to-late 1990s, migrant remittances have replaced FDI and ODA as Nigeria's main source of foreign capita (Iheke，2012). In the first decade of 21st century, Nigeria has become the country with the largest amount of migrant remittances among African countries, and migrant remittances have become the second largest source of foreign exchange earnings in Nigeria that are second only to oil exports (Oduh & Urama, 2012;Oluwafemi & Ayandibu,2014).

From 2000 to 2011, the country experienced a massive outflow of labor, with some 10 percent of the population living and working abroad by the end of 2010. Migrant remittances also showed an upward trend during this time.In 2005, migrant remittances accounted for 6% of GDP, while foreign direct investment and securities investment were 4.4% and 1% respectively (Oduh & Urama, 2012). In 2006, while the ratio of foreign direct investment (FDI) to GDP dropped to 3.3%, that of migrant remittances increased to 12.0% at the same time. In 2006, the ratio of migrant remittances to GDP was almost double that of government expenditure in the GDP. In fact, except for 2002-2003, the ratio of migrant remittances to GDP in 1999-2010 exceeded that of FDI. However, the size of migrant remittances is still relatively small compared with crude oil exports. Between 1999 and 2010, crude oil exports accounted for nearly half of the country's gross domestic product, 38.4% even during the financial crisis. However, in 1996 Nigeria migrant remittances accounted for only 0.4% of GDP, and in 2005 to 13.04%. Between 1970 and 2010, the average ratio of migrant remittances to GDP in Nigeria was 8.31% (Olubiyi,2013) .In the literature, the migrant remittances are a significant component of Nigerian GDP and can exert an important impact on economic growth. But what doubts us is that during the same period Nigerian economy experienced the slowest rise in real GDP in Western Africa (World Bank,2012), which seems that the increase in migrant remittances did not significantly influence economic growth. Is this the truth or not? Indeed we wonder whether migrant remittances are positive or negative for economic growth in Nigeria. Unfortunately, migrant remittances in Nigeria are underreported and their effect on economic growth is not adequately studied. That is why we consider investigating the role of migrant remittances in Nigeria's growth trajectory is particularly relevant. In view of this, our study would like to identify the relationship between migrant remittances and economic growth of Nigeria by analyzing time series data of years 1977 to 2014.

According to the literature ,economic growth can be driven by many factors, but for our analysis four variables were employed, which include migrant remittance, foreign direct investment inflows (FDI), official development aids (ODA) and export of goods and services. The aim of this research is to assess the impact of migrant remittances, along with FDI, ODA and export on Nigerian economic growth. And no doubt export is the largest part of Nigerian GDP, and can certainly promote economic development of a country. In many previous studies, FDI inflows can also produce relative higher investment returns which can stimulate economic growth. We expected migrant remittances, export and FDI all have a positive and a significant impact on Nigerian economic growth. ODA is the net official development assistance which is supposed to promote economic development and welfare of recipient countries, but in Africa many previous studies found that ODA was an obstacle to economic growth . So we expected a negative and a significant impact of ODA on Nigerian economic growth.

This paper consists of four parts: following the introduction is the theoretical and empirical review of past literatures, part three deals with modeling framework for estimation results and interpretation of estimation and part four concludes on the basis of analysis.

II. Literature Survey

A lot of present studies claim that there is significant direct and indirect positive relationship between migrant remittances and economic growth in the recipient countries, but many other scholars still claim a negative relationship between migrant remittances and economic growth. Gupta et al. (2007) hold that migrant remittances might augment recipient households' resources, smooth consumption, provide working capital, reduce poverty, and have multiplier effects through increased household spending, but whether migrant remittances would help economic growth directly remains an inconclusive issue. Furtherly Stahl & Arnold (1986) argued that the use of migrant remittances for consumption may actually have a positive effect on growth because of their possible multiplier effect. Ziesemer (2007) proposes a savings channel that relates migrant remittances with growth. He finds that migrant remittances have a positive impact on growth.

Some empirical studies (Pradhan ,2008; Fayissa & siah,2010;Naeem Hussain ,2009;Emmanuel,2010) obtained findings in support of a positive impact of migrant remittances on economic growth and they found that the enhancing effects of migrant remittances to promote economic growth. Using the ARDL method on the basis of the data from 1976 to 2010, Paul et al (2011) found that the long-term relationship between remittances and GDP in the Bangladesh. According to Yang(2004), Woodruff & Zenteno (2001), migrant remittances may

release credit constraint of domestic economy and stimulate private investment. Buch et al (2004) also claim that migrant remittances could spur economic growth directly or indirectly. Giuliano & Ruiz Arranz (2005) confirmed that the positive effects of migrant remittances on the growth of developing countries using a panel data of 37 African countries. Fayissa & Nsiah (2010) provided new evidence that migrant remittances can boost growth in countries in which financial development is less developed. In Chami et al.'s view (1991), migrant remittances can help to promote a country's economic growth, improve macroeconomic stability and mitigate adverse external shocks. Several other studies shows that migrant remittances can boost growth through supply of additional foreign exchange and funding of businesses (Amuedo-Dorantes et al., 2010), improvement in human capital (Edwards & Ureta, 2003 & Amuedo-Dorantes et al, 2008), and reduction in macroeconomic volatility (Barajas et al. 2009).

There are opposite scholarly opinions to the impact of migrant remittances on economic growth and development. Singh, Haacker & Lee (2009) found a negative and significant effect of migrant remittances on growth. This result is consistent with the finding of Chami, Fullenkampb & Jahjah (2003) who found that migrant remittances are unlikely to stimulate economic growth for reducing labor market participation. Chami et al. (2005) argued that migrant remittances might depress production of their home country using cross-country panel data. Using a sample of 100 countries for the period 1970 to 2003, Freund and Spatafora (2005) found no statistically significant relation between migrant remittances and economic growth. Similarly Lopez et al. (2007) holds that migrant remittances retard growth through a real currency appreciation and reduced competition in tradable goods. Adams(2010)Being effective in reducing poverty and promoting health in developing countries, migrant remittances can also lead to negative impact on labor supply, education and economic growth .Barajas et. al. (2009) found that migrant remittances have insignificant or even negative effects on economic growth. This is not consistent with those economists whose view is that migrant remittances have significant positive effects on economic growth, and Giuliano & Ruiz-Arranz (2009) agree with him.

In Nigeria, Udah (2011) showed that migrant remittances affect economic performance in Nigeria through its interaction with human capital and technology diffusion. In his study, Olubiyi (2009) found that migrant remittances have a positive effect on demand deposit, liquidity and Deposit Money Bank (DMB) credit and loan in Nigeria Tuaòo-Amador et al. (2007) analyzed the relationship between migrant remittances and Nigeria's GDP, and concluded that the migrant remittances can contribute to economic growth. Udah's study (2011) also found that Nigeria's economic growth benefited from migrant remittances, so the government should make preferential policies to attract more migrant remittances to invest in educational development and technological development. Oke et al. (2011) also held a similar view that migrant remittances have a positive and significant impact on Nigeria's loanable funds, contributing to financial development. But Chami et al. (2005) analyzed the relationship between migrant remittances and the economic growth in Nigeria and other countries on the basis of panel data from 1970 to 1999 and found a significant negative impact of migrant remittances on economic growth. Oduh & Urama (2012) also claimed that in Nigeria migrant remittances hardly influenced economic growth. As can be seen from the above literature review, migrant remittances have both positive and negative impacts on economic growth in Nigeria.

III. Empirical Analysis And Result Discussions

Following the theoretical literature of the two gap model of economic growth coupled with an assumption of open economy, the functional relationship between migrant remittances and economic growth of Nigeria are expressed as:

$$GDP = f(REM,FDI,ODA,EXD,EXP)\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

In a linear function, it is represented as follows,

$$GDP_t = \alpha_0 + \alpha_1 REM_t + \alpha_2 FDI_t + \alpha_3 ODA_t + \alpha_4 EXP_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Where

GDP=Nominal gross domestic product(US$ million) as proxy of economic growth;

REM= Migrant remittances as proxy of migrant remittance inflows (US$ million);

FDI = Foreign direct investment(US$ million) as proxy of foreign direct investment;

ODA = Net official development assistance received(US$ million);

EXP = Export as proxy of export of goods and service, measured in US$ million;

t = time;

ε = error term;

α_o = the constant term;

α_1 = coefficient of migrant remittances;

α_2 = coefficient of FDI;

α_3 = coefficient of ODA;

α_4 = coefficient of export.

We take the natural log of all variables to reduce the gap between the values of the variables as well as to reduce

the possibility of the heteroscedasticity.
Thus:

$$LNGDP_t= \alpha_0 + \alpha_1 LNREM_t + \alpha_2 LNFDI_t + \alpha_3 LNODA_t + \alpha_4 LNEXP_t + \varepsilon_t …………………... (3)$$

A time series data between 1977 and 2014 from the World Bank's World Development Indicators （WDI）is used in this paper. The calculation process of regressions and tests are completed by econometric software Eviews 8.0.We start by testing for stationarity of the individual variables by using the Augmented Dickey– Fuller (ADF，1981). This test is very important in order to avoid spurious regression. After the series are made stationary (by appropriately differencing them), they can be used in regression analysis.

Table 1: Test of Stationarity using Augmented Dickey–Fuller (ADF)

Variables	ADF Values	Critical Values(10%)	Decision
LNGDP/ △LNGDP	0.957352/ -5.493707	-2.610263/ -2.611531	I(1)/I(0)
LN FDI/ △LN FDI	-0.862713 /-12.31847	-2.611531 /-2.611531	I(1)/I(0)
LN EXP/ △LN EXP	-0.476678/-5.975086	-2.610263 /-2.611531	I(1)/I (0)
LN REM/ △LN REM	-0.964141/ -2.956847	-2.612874/ -2.619160	I(1)/I (0)
LNODA/ △LNODA	-0.961321/ -5.714982	-2.612874/-2.612874	I(1)/I(0)

Table 1 shows the results of ADF test after taking the log and log difference of data. Here ADF test is performed only included the constant term to these variables. The results of the ADF indicate that the variables such as LNREM, LNFDI,LNODA,LNEXP and LNGDP were non-stationary in levels, I[0], but become stationary after first differencing, or integrated of order one, I [1]. That is to say, after completing ADF unit root test we come to know that our data of all variables are stationary by taking log difference of the data series. Hence, we employed Johansen Co-Integration test and the ECM technique to determine the existence of long-run and short-run relationship between the variables. Table 2 shows a summary for the co-integration test. Trace statistics as well as Maximum Eigen values suggested that there is at most one co-integration vector because both trace statistics and maximum Eigen value are greater than critical value at 5% level of significance. Thus it is deduced that a long run relationship exists among the variables .The estimated equations can be written as:

$$LNGDP= -0.055650LNREM-0.042448LNFDI+0.026419 LNODA+1.338652LNEXP$$

It can be seen from the co-integration equation that each variable affects the growth of GDP through a long-term equilibrium relationship. Migrant remittances and FDI have a negative effect on economic growth, and ODA and exports have a positive effect on economic growth. For every 1% increase in migrant remittances and FDI, GDP will be reduced by 0.06% and 0.04%, respectively; for every 1% increase in ODA and exports, GDP will increase by 0.03% and 1.34%, respectively.

Table 2. Co-integration Test Results

Null Hypothesis	Maximum Eigenvalue	Trace Statistic	5% Critical Value	Prob. Value	Hypothesized No. of CE(s)
r=0	0.643279	83.02281	69.81889	0.0031	**None** *
r≤1	0.545366	45.91393	47.85613	0.0753	At most 1
r≤2	0.255972	17.53650	29.79707	0.6004	At most 2
r≤3	0.164433	6.892129	15.49471	0.5902	At most 3
r≤4	0.011734	0.424910	3.841466	0.5145	At most 4

Note:* denotes rejection of the hypothesis at the 0.05 level.

The ECM is employed when all variables become stationery after converted into first differenced. ECM (-1) means residual of the regression model one period lag of residuals. The value of ECM (-1) is negative but significant at 5% level. Negative coefficient sign of ECM implies the speed of adjustment from disequilibrium to equilibrium and the results show that there is short as well as long run relationship exists between dependent and independents variables. The estimated coefficient of the error correction vector is

-0.032468, implying the speed of adjustment correcting back disequilibrium at the rate of 3.2 % annually. This also shows that approximately 3.2% of the previous year's disequilibrium in the economy is corrected in the long run. Table 3 reported the results of short-run estimate by using Error Correction Model (ECM). The coefficients in the table show that coefficients of migrant remittances and ODA have positive relationship with economic growth while coefficient of FDI is significant negative. The coefficient of export is not significant, which means export does not produce any significant influence on growth in short term.

Table 3. Error Correction Model

	△LN GDP	△LNREM	△LN FDI	△LN EXP	△LN ODA
△LN GDPt-1	0.111455	-0.049932	0.129663	-0.118006	-0.463405
	(0.28683)	(0.79274)	(0.54694)	(0.32549)	(0.66508)
△LN REMt-1	0.024504	-0.280586	-0.027486	0.006046	-0.091828
	(0.07675)	(0.21211)	(0.14634)	(0.08709)	(0.17795)
△LN FDIt-1	-0.020825	-0.223280	-0.655587	-0.108415	-0.020431
	(0.07469)	(0.20643)	(0.14242)	(0.08476)	(0.17318)
△LN EXPt-1	-0.067168	0.510838	-0.369113	0.361440	0.762597
	(0.26567)	(0.73425)	(0.50658)	(0.30147)	(0.61600)
△LNODAt-1	0.032075	0.167100	0.217717	0.061137	0.229574
	(0.08613)	(0.23806)	(0.16424)	(0.09774)	(0.19972)
ECM (-1)	-0.032468	-0.634078	0.166539	-0.671822	0.604681
	(0.26105)	(0.72149)	(0.60530)	(0.49778)	(0.29624)
C	0.065131	0.269655	0.125204	0.049049	0.096093
	(0.05005)	(0.13834)	(0.09545)	(0.05680)	(0.11606)
R-squared	0.020504	0.155289	0.461882	0.203325	0.087579
Adj. R-squared	-0.182151	-0.019478	0.350547	0.038496	-0.101198

Note: The numbers in parentheses are p values and CointEq1 is the error correction term.

Interpretation of VEC models requires that stability condition be met. If the specified model is stable, it is invertible. If right number of lags is selected, then VEC should be stable. Figure 2 depicts the stability of VECM. All the inverse roots of characteristic polynomial lie inside the unit circle. Therefore, the error correction model we used in the paper is stable.

Inverse Roots of AR Characteristic Polynomial
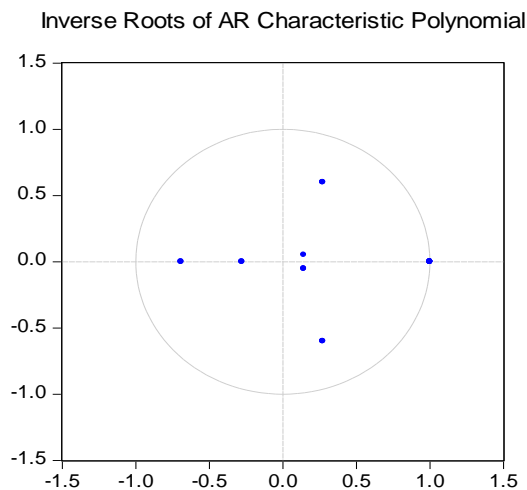
Figure 2. Error correction model stability test

IV. Conclusion And Policy Recommendations

On the basis of Nigeria's specific annual time series data for 37 years, this paper uses Johansen method of co-integration and error correction mechanism to determine if there exists long run and short-run correlation between migrant remittances and economic growth in Nigeria. It is often argued by many scholars(such as Pradhan,2008; Fayissa & siah,2010;Naeem Hussain ,2009;Emmanuel,2010; Koyameh-Marsh,2012) that

migrant remittances have a positive significant impact on economic growth but our study did not support this argument. Our study found that migrant remittances have significant positive impact on Nigeria's economic growth in the short run, but negative in the long run，and this result supports the studies of Chami, Fullenkampb & Jahjah (2003), Lopez et al. (2007), Singh, Haacker & Lee (2009),Siddique et al.(2011) and Jawaid & Raza (2012).The primary reason for this result lies in that the Nigerian government did not pay enough attention to the role of migrant remittances in the long term economic development strategy. That is to say, as the largest economy in Africa, Nigeria has failed for long to formulate a strategic plan that specifically guides migrant remittances to promote development projects and economic growth. This implies that although migrant remittances are now a source of foreign exchange earnings in Nigeria only next to oil, policies to channel its use are still rudimentary. Hence the Nigerian migrant remittances industry could hardly be said to be positioned to help economic growth in any meaningful way. The result also indicates that large amount of migrant remittances received in Nigeria meets domestic consumption rather than spur economic growth. The migrant remittances are mainly used for daily consumption (Ratha et al. 2011). Additionally the informal channels play an important role in migrant remittances in Nigeria, accounting for about 33% of the total (Ratha et al.,2011).

Besides, in the long run, both exports and ODA have a significant positive impact on economic growth, which to a certain extent confirms Nigeria's reliance on crude oil export and foreign aid growth mode. At the same time the result implies that the government should keep open to the international market and continue the long-term strategy towards the export-led growth. Additionally it seems that FDI has hindered economic growth both in the short and the long term, which reveals the strategic flaw that the Nigerian government has long neglected utilizing FDI effectively to promote economic growth.

An implication drawn from this study is that Nigerian government is supposed to formulate efficient policies to attract more migrant remittances through formal financial channels and utilize migrant remittances effectively on productive investment.

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