Revisiting the Effects of Workers' Remittances on Economic Development in Nigeria

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Abstract. Poverty in Nigeria continues unabated despite huge inflow of remittances. Our result supports the argument that remittances can improve economic growth but can also worsen overall wellbeing. Reasons for this are, first, remittances beneficiaries in Nigeria are concentrated in the middle income class with high propensity to consume. Second, due to high propensity to consume, consumption triggers good prices in such a way as to worsen the purchasing power of the poor. Third, institutions are weak and the poor do not benefit from weak institution. Thus good quality institutions should be encouraged while ostentatious spending should be discouraged.
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1. Introduction

The Remittances, defined as the share of foreign-based earnings sent to relative(s) in the home country, are said to be large and stable and therefore represent additional capital inflow necessary for economic development. The importance of remittances in the developmental process of some countries and regions is now receiving greater attention. The Millennium Development Goal [MDG] (2005) claimed that remittances act as a financial catalysts to close the gap of financial requirements of USD 273 billion for poverty to reduce by half in 2015. The inflow surpasses the amount of Official Development Assistant (ODA) and is more than the size of foreign direct investment (FDI). For instance, remittances are second most important source of foreign exchange after oil revenue in Nigeria. The amount of the inflow rose from $22 million in 1980 to $19.8 billion in 2010 and by 2014, it has increased by more than $1 billion. Due to this huge and rising inflow, Nigeria was ranked the fifth remittance receiver in the developing world and first in Africa (World Bank, 2014).

Given this large and continuous inflow to the country, one wonders how significant and supposedly positive impact it will have on the economy. But this appears not to be the case because the growth rate of the country before

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the surge in remittances was no better than the period of sizable remittances. In particular, over the last 30 years (1984-2014), average annual growth was 4.4 percent while in the first 20 years (1964-1984) the growth rate was 4.3 percent. Correspondingly, per capita income rose from an annual average of US$329 to US$593. In the same vein, poverty, unemployment and inequality show disturbing figures which could make one doubt the importance of remittances in development. Have remittances contributed significantly to per capita income in Nigeria? Have remittances actually reduced poverty in Nigeria or is any factor inhibiting the developmental effect of remittances?

Surprisingly, empirical evidence to answer this question is still missing. However, there are pockets of research papers that have investigated this area of study, but the results are not convincing due to lack of theoretical foundation and weak methodological approach. This paper seeks to fill this lacuna by providing evidence based on rigorous analysis built on appropriate theoretical underpinning. This theory shows channels through which remittances may or may not influence development. To our understanding, this is the first paper that will do this for Nigeria.

2. Review of the Literature

One major constraint in analysing the developmental impact of remittances is the lack of theoretical underpinning. Until recently, immanent empiricism prevailed where empirical studies were drawn from a hard look at the data to form general principles. More recently, Barajas, Fullenkamp, Gapen & Montiel (2009) attempted to document the possible theoretical basis of the developmental effect of remittances using the growth accounting framework. This generated three basic categoriesnamely: capital accumulation, labour force growth and the total factor productivity.

2.1 Capital Accumulation Theory

Remittances can serve as substitutes to poorly developed financial institution, but can also complement sound financial development, thereby reducing cost of capital and increasing investment. Further, remittances can facilitate access to loan and is considered as a guarantee against the loan (Barajas *et al,* 2009) thereby reducing the risk of macroeconomic instability that can attenuate the size of investment. However, this possibility depends on the consumption pattern of the country. If the consumption is characterized by the permanent income hypothesis (PIH) combined with high rate of marginal propensity to consume (MPC) and marginal propensity to import (MPM), then investment may be negatively affected.

Remittances can increase the level of human capital either by reducing dropout rate or by increasing the rate of tertiary education enrolment. However, the supply of skills could outweigh demand, or the acquired skills may be irrelevant in the industrial sector. The excess human capital over domestic content will either draw down wages or facilitate high level of skilled unemployment. Thus, the effect of remittances on development, as far as the capital accumulation theory is concerned, depends on the pattern of consumption and investment and optimal human capital required for development.

2.2 Labour Force Growth and Total Factor Productivity Theories

Theoretically, remittances occasion moral hazard because it reduces job search. This moral hazard is intensified by long distance separating the remitter from the recipient. The total factor productivity theory holds that if domestic investments are efficiently carried out and if productive sectors are

dynamically functional, then remittances can enhance total factor productivity. Efficient investment prompts the ability to change quality of domestic financial intermediary (Barajas *et al,* 2009). The extent to which this can be done depends on first, if the inflow is regarded as capital flow. Second, if the remitters and the recipients possess adequate investment information and strategies that surpass the one known by the financial intermediary and third, if the recipients/remitters possess the ability to make efficient use of such information.

If any of the conditions is violated, remittances may reduce the efficiency of domestic investment. Even if all these are satisfied, the relative factor content used is also important. In a country where investment is largely input-import dependent, import demand will lead to currency depreciation and this will make imported inputs more expensive, and by implication reduces TFP.

Another possible channel through which remittances can affect TFP is the patterns of consumption in the country. A country with high MPC will experience low saving even if remittances increase and by implication, reduces the financial deepening of the system. Efficient remittances financing is expected to improve economic development if first, it increases economies of scale in financial intermediation, and second, if it generates a favourable political economy. But in a case where economies of scale are non-existent, or where the interest of major remittance depositors are in contrast to the interest of the economy as a whole, such efficiency-effect will be frustrated.

It is also possible for remittances to affect TFP by changing the dynamic production externalities generated by the economy. If remittances cause *Dutch Disease*, then the sector that is assumed to be dynamic will be affected. A high currency appreciation will make manufactured exports expensive and less competitive and by implication generate low demand. This will lead to resource reallocation to other sector, thereby strangulating the manufactured export sector.

In the case of the political economy effect, remittances are transfer rather than earned through the creation of domestic goods and services where private citizens may play positive role in the monitoring and management of government policy and its performance over time. Hence, remittances act as 'illicit grease money' used to lubricate the wheels of bad governance and allows poor and perhaps inefficient government policy to strive. To the extent that governance matters for efficiency and economic development, the 'illicit grease money' will stiffen capital accumulation, dwarf financial development and attenuate total factor productivity.

The review of theories, show that the effect of remittances on economic development depends on appropriate transmission mechanism such as investment, the labour market condition and the rules guiding economic activities (governance institution). Specifically, the extent to which remittances positively affects development is conditioned on the consumption pattern (altruism), the efficiency of financial intermediary (investment), human capital development, and governance institution.

2.3 *Evidence on the effects of remittances on development*

There is a plethora of empirical evidence on the developmental effect of remittances. This review focuses on the recent evidence with particular attention on the transmission mechanism. The starting point is the work of Chami, Fullenkamp & Jahjah (2003) of 104 low and transition economies using Ordinary Least Squares (OLS) and Fixed Effects Mechanism (FEM).

They found that a 10 per cent increase in the ratio of country's remittances to GDP leads to a 0.05 percent reduction in GDP per capita growth. With the regional dummy, SSA will lose 0.14 per cent in GDP per capita growth to a 10 per cent increase in remittances. They suggest moral hazard existing between the remitter and remittance spending households as candidates for this scenario. Their argument is that receivers substitute remittances for labour effort – more remittances flow in, the less labour efforts are supplied for searching for job, and the more such receivers spend. At times, part of the remittances is spent acquiring properties that are classified as non-productive.

Evidence from Kenya provided by Kiio, Soi, & Buigut (2014) shows that remittances impacted positively on the real per capita growth and capital formation in Kenya. Also in Ghana, Antwi, Mills, & Zhao (2013) report in their ARDL results that remittances have a significant impact on poverty reduction in the country, through increasing income, smoothing consumption and easing capital constraints of the poor. Meanwhile, Nyeadi & Atiga (2014) found a causality running from remittances to economic growth in Ghana in their Vector Autoregressive (VAR) framework. They also noted that remittances improve household welfare in Ghana.

In sum, the overall analysis is that whether remittances in the country of origin is productive and poverty reducing or counterproductive and poverty enhancing is debatable. However, it seems that evidence is skewed more to the positive side.

A study on the human capital effects of remittances was carried out by Cox & Ureta (2003) on the premise that human capital is crucial to long run growth. The authors discovered that the capacity of remittances in reducing dropout rates is larger than the capacity of domestic labour income, most especially in the urban area. A 10 per cent increase in remittance inflow reduces the likelihood of leaving school by 5.4 per cent (1.4 per cent in rural areas) in the first through sixth grades. In grades seven through twelve, the likelihood is reduced by 2.7 per cent (2.6% in rural areas). Similarly, Yang (2003) reports that children aged 16 to 20 will increase in school enrolment by 10.3per cent if remittances out of total income can increase by 10 per cent. Lopez-Cordova (2005) contends that literacy rates among young adolescents in Mexico will increase as remittances increase. Further, McLeod & Molina (2005) claimed that remittances increase the return to education at home and increase investment in human capital by the family left behind.

World Bank (2006) found positive effect of remittances on economic growth in 67 countries between 1991 and 2005. But when investment variable was removed, the effect was no longer significant. When remittances were interacted with governance, financial depth and educational status, there was negative and significant effect of remittances on GDP growth but positive effect on both of the interacted terms. This implies that the impact of remittances on economic growth is conditioned on the varieties of domestic factors. This result is supported by Olubiyi (2013) where remittances interacted with governance variable before it impact positively and significantly on investment in Nigeria.

Giuliano & Ruiz-Arranz (2009) used internal instrument, that is, the lagged independent variable, and system GMM to mitigate the possible endogeneity problems in a sample of 73 countries between 1975 and 2002. They also make use of lagged dependent variable (lagged GDP per capita) as a conditioning variable. The result shows no significant effect of remittances

on economic growth. Notably, when remittances were interacted with financial development, GDP growth was negatively and significantly affected by remittances. The explanation for this is that in a country with low financial development, remittances substitutes for bank financing in the growth process. Ramirez & Shamma (2009) found the same result for Latin American countries between 1990 and 2005; they however used the fully modified OLS rather than instrumental variable (IV). Catrinescu, Leon-Ladesma, Piracha, & Quillin (2006) used internal IV (lagged remittances) in a model of static and dynamic panel regression of 114 countries in 1991-2003 periods. They also controlled for initial income, gross capital formation, foreign direct investment and some governance variable. The positive effect found in the result was not robust.

Barajas *et al* (2009) argued that the distance used as the IV is time invariant and so was most times interacted with some other macroeconomic variables such as GDP growth rate, unemployment rate or the growth rate of GDP per capita. The problem with this IV, according to the authors, is that if there is any change in the macroeconomic variable, the IV will also change proportionately, thereby making the IV and the macroeconomic variable to be almost perfectly correlated. Thus, the authors employed alternative IV such as transaction cost and this is associated with remittances. Arguably, such IV is not expected to correlate with the error term in the growth-remittance model. Since transaction cost is not directly observed, they constructed the ratio of remittance to GDP of all other recipient countries. Using this IV in their growth equation of 84 countries between 1970 and 2004 they found that there was no robust evidence that remittances have positive and significant effect on economic growth.

Goschin (2014) was interested in the direct influence of remittances on development. To do this, he treated remittances as capital flows that have macroeconomic growth potential. He constructed two different growth models (one with absolute GDP and the other with relative GDP) and tested the models with data from the Central and Eastern Europe (CEE) spanning 1995 to 2011. Using panel estimation methods that controls for potential cross-section heterogeneity, he found that remittances positively influence both absolute and relative GDP in these countries. However the use of relative GDP is not the best measure of development.

What the theoretical and empirical reviews show is that there is no automatic positive effect of remittances on development. In fact the direction effect is conditioned on the transmission mechanism. Even at that, the effect may be significant or insignificant, positive or negative. Thus it is important to study the case of Nigeria in order to understand variables that are remittance-friendly in the development process.

3. Methodology

The model to investigate the role of remittances on economic growth is based on the extended version of the neoclassical model (Barro, 1996). This model is employed because some of the variables discussed in the growth accounting framework are present. Within this framework, the growth equation can be expressed as follows:

$$g_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 H_t + \alpha_3 I_t + \alpha_4 rem_t + \alpha_5 X_t + \varepsilon_t \qquad (1)$$

Where g represents economic growth at time t, Y_{t-1} is the initial GDP, H is the human capital, I stands for the investment and rem stands for remittances. Letter X represents a set of choice and environmental variables that effect economic growth while ε represents the error term. A set of choice variables X include degree of openness, inflation rate, interest rate, exchange rate and the International Country Risk Guide (ICRG) governance variables.

Two other specifications are added in order to closely examine the effect of remittances on economic development. First, the GDP growth variable in equation 1 is replaced with growth rate of GDP per capita (gc_t) and later with poverty (p_t) (Ravallion, 1997; Dollar and Kraay, 2004 and Capistrano and Sta, 2007). The specifications for these two are represented by equations 2 and 3.

$$gc_t = \alpha_0 + \alpha_1 gc_{t-1} + \alpha_2 g_t + \alpha_3 H_t + \alpha_4 I_t + \alpha_5 rem_t + \alpha_6 X_t + \varepsilon_t \quad (2)$$

$$p_t = \alpha_0 + \alpha_1 gc_t + \alpha_2 g_t + \alpha_3 H_t + \alpha_4 I_t + \alpha_5 rem_t + \alpha_6 X_t + \varepsilon_t \quad (3)$$

3.1 Estimation and Measurement Issues

Close investigation of equations 1-3 suggests the existence of possible endogeneity problem. That is, the three variables – growth rate, per capita and poverty appear to be affected by each other. Furthermore, investment and some other controlled variables may probably correlate with each other. Also, the equations show that GDP growth, per capita income and poverty are all affected by a set of third variables such as investment, governance system, exchange rate and perhaps improvement in the economies of the trading partners. Most of these third variables exhibit some relationships among themselves, thereby strengthening the endogeneity problem.

There are several ways of dealing with endogeneity issues and this include but not limited to the use of IV, conditioning variables or appropriate estimation technique. Since there is no conclusive result arising from the use of IV and conditioning variable, this study employed a Generalized System of Moments (GMM), which is considered to be an appropriate technique of estimation. GMM has been considered to be a powerful and most widely used estimation technique to deal with endogeneity problems. Meanwhile since remittances and some macroeconomic variables are believed to be persistent, the Arellano-Bover System GMM was used. Based on Barajas et al (2009) we further interact remittances with other variables such as governance, investment, and human capital variables in order to capture complementarity or otherwise of remittances on other variables in development process. The estimable equations in the Arellano-Bover GMM version are given in equations 4 to 6.

$$\Delta g_t = \alpha_0 + \Delta \alpha_1 g_{t-1} + \alpha_3 \Delta H_t + \alpha_4 \Delta I_t + \alpha_5 \Delta rem_t + \alpha_6 \Delta rem_{it} * \Delta V_t + \alpha_7 \Delta X_t + \varepsilon_t \quad (4)$$

$$\Delta pc_t = \alpha_0 + \Delta \alpha_1 pc_{t-1} + \alpha_3 \Delta H_t + \alpha_4 I_t + \alpha_5 \Delta rem_t + \alpha_6 \Delta rem_{it} * \Delta V_t + \alpha_7 \Delta X_t + \varepsilon_t \quad (5)$$

$$\Delta p_t = \alpha_0 + \Delta \alpha_1 p_{t-1} + \alpha_3 \Delta H_t + \alpha_4 I_t + \alpha_5 \Delta rem_t + \alpha_6 \Delta rem_{it} * \Delta V_t + \alpha_7 \Delta X_t + \varepsilon_t \quad (6)$$

Where V is a set of interacting variables mentioned above and other variables are as defined in equations 1 to 3.

One possible setback in the use of GMM to estimate a model where some of the variables reported zeroes or unreported or omitted observation is that

in the process of differencing, the concerned variables will be dropped due to non-orthogonality. Since poverty data was not reported yearly, it is possible to encounter this problem. This problem is addressed by computing the average rate of change between two periods.

3.2 *Sources of data*

Several of the variables employed in the analysis are common macroeconomic variables available from annual publications. GDP growth, interest rate, exchange rate and inflation rate were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (2013 online version). Fixed capital formation proxy for investment and was sourced from the CBN Statistical Bulletin (online version) while GDP per capita and poverty data were from the annual yearbook of the National Bureau of Statistics (NBS, 213). Workers' Remittances was extracted from the International Monetary Fund (IMF) Balance of Payments Yearbook (2013). Tertiary school enrolment proxy for human capital development and it was sourced from World Development Indicators, 2013. Governance variables were taken from the widely used ICRG published by the Political Risk Service (PRS). Degree of openness was computed as the sum of export and import divided by GDP. The exports and imports data were also taken from the CBN Statistical Bulletin (2013 online version). Since all the variables were extracted from different sources, the series were transformed to logarithmic value to ascertain the same measurement. The logarithmic transformation also have an added advantage of controlling for omitted variables. However, GDP growth inflation and interest rates were excluded from such transformation.

4. Presentation of result

4.1. Results of Correlation Matrix

The correlation matrix in Table 1 shows pairwise relationship of variables. Remittances and GDP growth showed negative but insignificant relationship, suggesting that remittances could be countercyclical. But remittances had positive and significant relationship with poverty (lnpov) and per capita income (lngpci). This implies that remittances could influence and could be influenced by per capita GDP. Contrary to expectation, poverty did not improve with remittances (0.71) or GDP (0.61). This latter negative correlation may be explained by the poverty gap between income levels in Nigeria. Amidst income inequality in Nigeria, it is quite possible that growth rates improve in the face of increasing poverty. The core poor are also the ones least able to afford to send a member of their household abroad, therefore least likely to benefit from remittances. Middle-income households have higher migration rates than poorer households since the latter lack the means for mobility.

The relationship between governance variables and remittances reveal positive and significant outcome, that is, improved governance is associated with increased remittances and vice-vasa. It is of note that exchange rate had a negative association with remittances. Hence, during exchange rate depreciation, inflow of remittances subsides. It also means that increased remittances generate appreciation.

Several explanatory variables are positively correlated with GDP and statistically strong. Human capital (0.7993), exchange rate (0.6390) and investment (0.5756) are positively and significantly correlated with GDP. Specifically, additional schooling or human capital, captured using

enrolment rates has a positive relationship with economic size (GDP). The relationship between exchange rate and investment was positive and significant. Further, exchange rates were positively correlated with openness (0.77), law and order (0.40) and poverty (0.89).In addition the positive correlation with political stability (0.3493) implies that in more stable conditions workers remit more. Also the positive relationship between remittances and corruption (0.13) suggests that improvement in corruption will aid more remittance inflows.

/See Appendix 1/

4.2 Results of Model Estimation (Ordinary Least Square)

The ordinary least squares (OLS) results begin by investigating the determinants of GDP growth, starting from the traditional variables such as human capital, inflation, interest rate and exchange rate, after which governance variables and remittances were introduced (Table 2).

/See Appendix 2/

The values of the adjusted R-squared and the F-statistics show that the variables are well fitted and are important in the growth process. Physical capital (Lninv), human capital (Lnhc), inflation (infl), exchange rate (Lnexr) and per capita income (Lnpci) significantly determine the growth of GDP. All the variables were rightly signed except human capital that negatively affected GDP growth. The negative effect could be an evidence of the difference between town and gown, that is, there may be a disconnect between skill acquired in school and the one needed in the labour market. None of the governance variables significantly impacted on GDP growth even though control of corruption (Cor) and political stability (Pol) showed expected signs. However, the interaction of remittances with investment (model 5), human capital (model 6) and each of the governance variables (models 7 to 9) indicated that remittances (Reminv) tend to substitute investment, but complements control of corruption (Remcor) and strong political stability (Rempol) to improve the GDP growth. What this implies is that for remittances to effectively influence GDP, corruption must be curtailed while political stability must be encouraged.

/See Appendix 3/

The second measure of development, that is, per capita income showed in Table 3 contrasted from the model of GDP growth. First, most variables that were significant in the GDP models were rendered insignificant, even as the equations were well specified given the adjusted R-squared values. Second, the impact of investment and exchange rate on per capita income decrease both in magnitude and significance. Third and most especially, remittances have positive but mild and insignificant effect on per capita income in all the scenarios considered. The lower contribution of workers' remittances to per capita income could be traced to weak governance institutions or the absence of 'trickle down' effect.

Exchange rates show negative impact all through the scenarios while investment was positive but insignificant in most of the scenarios. Unlike in the correlation matrix however, human capital had a marginal negative impact on GDP per capita (models 10-14). This latter result came about

because enrolment rates were used to capture human capital while they better capture responsiveness of economic agents, they may not express the skills effect on output

The OLS results for the effects of remittances on poverty (Table 4) show that previous poverty levels significantly explains present poverty situation in each of the scenarios. Also, increase in GDP tends to significantly increase poverty in Nigeria, suggesting that most of the growth success worsens the welfare of the poor. Poverty responded negatively to investment, showing an inelastic response. However, when interactive variables were introduced, investment was no longer significant but still maintains its negative sign.

Poverty is positively and significantly associated with control of corruption. Meanwhile, remittances have a negative but mild effect on poverty, again showing that the poor have reduced options to break away from poverty through remittances. When remittances were interacted with investment and the governance variables, it was discovered that investment complements remittances to impact negatively on poverty. What this implies is that remittance inflow invested tends to reduce poverty. Other interactions show substitutability but not significant. Thus, the result shows that investment matter most for remittances to reduce poverty.

/See Appendix 4/

4.3: Generalised Method of Moments (GMM)Result

The results of theGeneralised Method of Moments (GMM) showed improvements in the behaviour of the independent variables. All the models well fitted the data and the instruments used were valid. Thus, some endogeneity problems and the issue of omitted variables were essentially addressed. This was evidenced as considerable improvements were made in the subsequent model estimations. The dynamic GMM estimation result of GDP model (Table 5)shows thatremittances were consistently positive and had significant effects on GDP. The highest magnitude of effect was noted in model 4 when remittances were interacted with investment, and some governance variables. The result shows that remittances complement control of corruption and human capital development to impact positively on GDP. This suggests that remittances improve development through increase in TFP.

/See Appendix 5/

Observably, human capital on its own exerts negative and significant effect on GDP. Thus, this result suggests that the negative effect of human capital on GDP could be reduced by remittances. The dynamic effect of remittances on GDP was notable when it was interacted with all the governance variables, human capital and investment. First, changes in remittances result in positive change in GDP. Second, remittances act as substitute to investment in the growth process. This suggests that although marginal efficiency of capital is high, remittances substitute for low investment to spur growth. Third, remittances complement control of corruption to exert positive and significant effect on GDP. This means that the capacity of remittances to improve growth is high when governance institution is favourable. Besides, the magnitude of coefficient of elasticity was notable (0.51) compared to the magnitude of the complementarity of

remittances and law and order (remold) on GDP, which was computed to be 0.01.

Other variables such as inflation, interest rate, exchange rate, and lagged GDP were rightly signed. Inflation rate had an adverse, albeit sizable effect on GDP growth. Exchange rate has a positive and significant association with GDP, suggesting that depreciation appeared to improve the economic performance of Nigeria. Interest rate has a positive and significant effect on GDP while degree of openness showed negative effect. These results were in contrast to what is expected. Perhaps the reason for negative effect of openness on GDP was as a result of high import demand.

The results of the dynamic model for per capita income provided a slightly different but somehow consistent result. The level of significance reduced when all the interactive variables were introduced but the direction of effect was consistent for most variables (Table 6). Meanwhile, remittances have insignificant effects on per capita income except in model 12 (when all the interactive variables were introduced). The remittance elasticity of per capita income was high (1.58), suggesting that per capita income was sensitive to changes in remittances.

/See Appendix 6/

The interaction of remittances with investment and with human capital was insignificant. The magnitude of complementarity of remittances and control of corruption was very small but significant. This suggests that for remittances to impact positively on per capita income, control of corruption must be effective.

The third measure of economic development was poverty level and the result of how remittances dynamically affect it is presented in Table 8. Unlike the first two GMM results, the effect of remittances on poverty was positive but insignificant. When remittances were interacted with corruption, the insignificance still prevailed. Furthermore, the interaction of remittances and law and order (remold) provided mild effect on poverty (0.006).

Unlike results from previous papers, our result shows that increase remittances worsened the condition of the poor. Not only that, the interaction of remittances with investment increases poverty in Nigeria. The only channel through which poverty can be reduced by remittances is human capital development. This suggests that the poor benefits from the TFP generated by remittances but not from altruism or investment.

/See Appendix 7/

Investment, and law and order showed negative and significant effect on poverty. That is, increase in domestic investment and improvement in law and order tend to significantly reduce poverty with respective estimate of 0.56 and 0.14. The positive effect of GDP on poverty is an evidence of growth without development, that is, the economic growth pattern of Nigeria appears to worsen the welfare condition of the poor. The level of poverty in Nigeria was so dynamic that previous poverty impact positively on contemporaneous poverty, suggesting that lack of improvement in poverty will have a far-reaching negative impact on future poverty.

Inflation, exchange rate and degree of openness showed no significant effect on poverty. Notably, the magnitude of effect of each of these variables (except openness) was negligible, implying that the poverty

situation in Nigeria is so pervasive that inflation has no impact. The interpretation of this is that most poor people are still grappling with the essential needs and so any changes in price level will not stop the consumption pattern, although it will worsen their condition.

5. Conclusion and Remarks

Several studies have claimed that remittances facilitate development by improving overall welfare condition of the receiving countries. Also in Nigeria, some analysts have established a poverty reducing effects of remittances. But if the result is anything to go by, why is poverty rate increasing in the face of continuous huge flow of remittances? We argue that the developmental effect of remittances does not translate to improved overall *well-being*. On the one hand, remittances improve economic growth and per capita income. On the other hand, it worsens overall welfare, that is, poverty. With the aid of a mix of theories of remittances and the use of Generalized Method of Moments for the period 1980-2013, three reasons can be established to explain why remittances could aggravate poverty. First, remittances beneficiaries are concentrated in the middle income class with high propensity to consume, low investment and weak 'trickle down' effect. Second, due to high propensity to consume, consumption triggers good prices in such a way as to worsen the purchasing power of the poor, thereby aggravating the poor position. Third, institutions are weak and the poor do not benefit from weak institution. As long as remittances strive where good quality institution exist, they will only be better off when institutions improve.

However, quality of human capital development enables remittances to reduce poverty. Following these results, the authorities should note that remittances on its own cannot reduce poverty in Nigeria. The authorities should therefore provide enabling environment, such as enhancing quality governance, improve investment climate and discourage ostentatious spending of remittances.

Appendix 1.

Table 1. *Correlation Matrix of the variables*

	g	Lninv	lnhc	lnrem	Infl	intrt	lnexr	Pol	cor	lod	lnopen	lnpov	lngpci
g	1												
lninv	0.5756*	1											
lnhc	0.7993*	0.6027*	1										
lnrem	-0.315	-0.332	0.4487*	1									
infl	-0.017	-0.216	-0.287	-0.3	1								
intrt	0.4211*	0.7181*	0.4507*	-0.6049*	0.0742	1							
lnexr	0.6390*	0.9372*	0.6594*	-0.5502*	-0.0912	0.7573*	1						
pol	-0.055	0.0394	-0.006	0.3493*	-0.0513	-0.276	-0.01	1					
cor	-0.3888*	-0.7829*	-0.6150*	0.13	0.4679*	-0.4102*	-0.7292*	-0.3	1				
lod	0.207	0.2819	0.3134	0.7174*	0.3317	0.6034*	0.4085*	-0.3787*	0.035	1			
lnopen	0.3574*	0.6694*	0.3508*	-0.7046*	0.2081	0.7691*	0.7767*	-0.33	-0.312	0.6863*	1		
lnpov	0.6135*	0.7769*	0.6116*	0.7186*	-0.0078	0.7823*	0.8974*	-0.25	-0.4594*	0.5828*	0.7842*	1	
lngpci	0.159	0.6394*	0.1342	0.4122*	-0.4564*	0.221	0.3824*	0.3692*	-0.6473*	-0.3536*	0.047	0.0939	1

Note: *, **, *** shows significance at 10%, 5% and 1% level

Appendix 2.

Table 2:*Result of the OLS estimates (growth rate of GDP)*

Variable	1	2	3	4	5	6	7	8	9
g	0.02	0.02	0.02	0.02	0.014	0.013	0.01	0.01	0.01
Lninv	.125***	.125***	.108**	.132***	.46**	.542**	0.45*	.584**	.557**
Lnhc	-.161***	-.161***	-.129**	-.123**	-.207***	-0.496	-0.82	-0.89	-0.8
Lnrem	0.01	0.01	0.01	0.014	0.229*	0.065	-0.34	-0.3	-0.2*
infl	-.00169**	0.001*	0.00	0.00	.00199**	-.00219**	0.001*	0.001*	.001*
intrt	0.01	0.01	0.01	0.01	0.01**	0.01	0.01	0.01	0.01
Lnexr	.0596**	.0597**	.0772**	0.07*	.0883*	.096**	0.07	0.13*	.187**
Lngpci	.112**	0.11*	0.14*	0.10	0.05	0.06	0.04	0.08	0.10
Pol		0.00	0.00	0.00	0.09	0.09	-0.56	-0.57	-0.61*
Cor			0.05	0.06	0.00	0.00	0.00	-0.46	-0.59
Lod				-0.03	-0.03	-0.04	-0.04*	-0.04*	0.35
Reminv					-0.02*	-0.02*	-0.02	-0.03	-0.03*
Remhc						0.02	0.04	0.04	0.03
Remcor							0.04	0.04	0.04***
Rempol								0.03	0.03*
Remlod									-0.02*
_cons	12.1***	12.1***	11.6***	11.6***	8.91***	11.8*	18.3*	18.5*	16.5*
r2	0.99	0.99	0.99	0.989	0.99	0.991	0.99	0.99	0.99
r2_a	0.98	0.98	0.98	0.982	0.984	0.984	0.98	0.99	0.99
F	224	190	169	159	164	147	138	138	148

Note: *, **, *** shows significance at 10%, 5% and 1% level

Appendix 3.

Table 3: *Result of OLS estimates (log of GDP per capita)*

Variable	10	11	12	13	14	15	16	17	18
L.lngpci	.653***	.463*	0.216	0.191	.165	.119	.098	-.078	-.101
Lninv	0.090	0.218	.313**	.386**	.861	.459	.357	-.299	-.446
Lnhc	-0.004	-0.119	-0.279	-0.265	-.401	.849	.125	.736	.799
Lnrem	0.040	0.038	0.032	0.033	.332	1.01	.197	.238	.112
Infl	-.00135	-0.004	-0.004	-0.004	-.005	-004	-.003	-.002	-.001
Intrt	-0.003	0.011	0.021	0.032	.032	.029	.032	.036*	.036*
Lnexr	-0.027	-0.131	-0.294**	-0.284*	.030	-.284*	-.330*	-.615**	-.752**
Lg	0.315	0.306	0.578	0.248	-.237	.167	.061	.609	.954
Pol		0.105*	.122**	.123**	.031	.117*	.113	1.717	2.076
Cor			-0.322*	-0.236	.114*	-.202	-1.458	-1.194	-.875
Lod				-0.093	-.103	-.094	-.101	-.074	-.774
Reminv					-.024	-001	.009	.052	.059
Remhc						-.071	-.029	-.049	-.048
Remcor							.075	.056	.029
Rempol								-.094	-.113
Remold									.045
_cons	-3.490	-2.180	-2.200	1.060	0.053	-11.500	.960	1.840	3.820
r2	0.951	0.958	0.963	0.966	0.968	0.969	0.970	0.973	0.973
r2_a	0.934	0.940	0.945	0.948	0.950	0.949	0.948	0.950	0.948
F	56.000	55.400	54.200	52.400	54.200	49.300	44.600	43.400	39.000

Note: *, **, *** shows significance at 10%, 5% and 1% level

Appendix 4.

Table 4: *Result of OLS estimates (Poverty)*

Variable	19	20	21	22	23	24	25	26	27
L.lnpov	.72***	.621**	.467**	.436**	.43**	0.374*	0.364*	0.376*	0.375*
Lninv	-0.106*	-.128**	-.137**	-.169***	-0.369	-0.540	-0.511	-0.555	-0.539
Lnhc	0.064	0.095	.175**	.166**	.222**	0.704	0.951	0.975	0.971*
Lnrem	-0.032*	-0.031*	-0.024*	-0.026*	-0.154	-0.092	-0.359	-0.350	-0.366
Infl	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001
Intrt	-0.001	-0.004	-0.005	-0.010	-0.010	-0.011	-0.012	-0.012	-0.012
Lnexr	-0.010	0.007	0.055	0.048	0.023	0.020	0.032	0.017	0.032
Lg	.608**	.689**	.713***	.89***	.996***	1.05***	1.09***	1.11***	1.08**
Pol		-0.026	-0.019	-0.020	-0.015	-0.018	-0.016	0.097	0.058
Cor			.178**	0.133*	0.107	0.114	0.509	0.541	0.500
Lod				-0.044*	-0.049*	-0.054*	-0.056**	-0.058*	-0.142*
Reminv					0.010*	0.020*	0.017*	0.020*	0.019*
Remhc						-0.027	-0.042	-0.042	-0.042
Remcor							-0.024	-0.026	-0.022
Rempol								-0.007	-0.005
Remold									-0.005
_cons	-5.710	-6.510*	-7.7**	-9.28**	-8.8**	-13.700*	-18.500	-18.900	-18.600
r2	0.939	0.942	0.958	0.963	0.965	0.966	0.966	0.966	0.967
r2_a	0.918	0.918	0.937	0.943	0.942	0.941	0.939	0.935	0.931
F	44.200	39.800	47.400	47.600	43.100	39.100	34.900	30.800	27.200

Note: *, **, *** shows significance at 10%, 5% and 1% level

Appendix 5.

Table 5: *System GMM Estimates (log of GDP)*

Variable	1	2	3	4	5	6
Lnrem	.0202***	.128*	0.122	.889**	.707**	0.003*
Lninv	.188***	.349***	.385**	.262**	.304***	0.285***
Lnhc	-.174***	-.221***	-0.558	-1.22***	-1.05***	0.002**
Infl	-.00163***	-.00186***	-.00203***	-.00165***	-.00159***	0.003
Intrt	.015***	.0125***	.015***	.0117***	.0121***	0.049**
Lnexr	.0544***	.07***	.0712***	.0428*	.0627**	0.017*
Pol	0.0004	-0.0004	0.0052	-0.0089	-0.128	0.189
Cor	-0.0392	-0.0486	-0.0572	-1.16**	-.947***	-.803**
Lod	-.0244***	-.0297***	-.0312***	-.0145**	-.0202***	-.0246***
Lnopen	-.124***	-.115***	-.126***	-.219***	-.215***	-.188***
Reminv		-0.0092	-0.011	-0.0024	-0.006	-.00737*
L.lngdp	.548**	.324***	.894***	.00163***	.0768***	.188*
Remhc			0.0207	.0612**	.0507***	.0409**
Remcor				.0733**	.0605***	.0521***
Rempol					0.0069	0.0105
Remold						0.010**
_cons	12.9***	11.5***	15.6***	28.4***	25.5***	22.9***
r2	0.989	0.991	0.991	0.992	0.992	0.993
r2_a	0.984	0.986	0.985	0.986	0.986	0.987
Hansen overid (chi-sqr)	14.151	15.294	17.841	13.931	17.764	21.037
Hansen overid (p-value)	0.166	0.1694	0.1206	0.3051	0.2178	0.1357

Note: *, **, *** shows significance at 10%, 5% and 1% level

Appendix 6.

Table 6: *System GMM estimates (Log of GDP per capita)*

Variable	7	8	9	10	11	12
Lnrem	0.001	0.35	0.602	-0.352	0.366	1.58**
Lninv	.248**	0.81	.679**	0.34	0.338	-0.356
Lnhc	0.017	-0.22	0.182	-0.365	0.329	2.5
Infl	.00291**	-.00435**	-.00432***	-.00274**	-.00301**	-0.096*
Intrt	0.01	0.01	0.0155	.0167*	.0221***	0.051*
Lnexr	-.555***	-.503***	-.497***	-.544***	-.705***	-0.956*
Pol	.19***	.178***	.169***	.124***	1.41**	0.09*
Cor	-.389***	-.385***	-.385***	-2.71***	-1.06	-0.311
Lod	-.139***	-.137***	-.124***	-.114***	-.137***	-0.544*
Lnopen	.632***	.661***	.61***	.476***	.55***	0.593*
g	1.77***	1.4**	1.1***	.954***	1.34***	2.12**
L.lngpci	-0.02	-0.06	-0.0308	-0.0384	-.218***	-0.391*
Reminv		-0.03	-0.0162	0.00838	0.0114	0.0519
Remhc			-0.0282	0.00584	-0.0254	-0.144
Remcor				.138**	.0423*	0.0119*
Rempol					-.0725***	-0.111*
Remold						0.0294
_cons	-20.4***	-19.5***	-19.6*	-2.13	-21*	-52***
r2	0.967	0.97	0.975	0.974	0.978	0.98
r2_a	0.947	0.95	0.955	0.949	0.955	0.956
Hansen overid (chi-sqr)	11.67	11.2	19.032	12.0857	13.8672	13.9471
Hansen overid (p-value)	0.308	0.43	0.1878	0.4388	0.4597	0.4537

Note: *, **, *** shows significance at 10%, 5% and 1% level

Appendix 7.

Table 7: *System GMM Estimates (Poverty)*

Variable	13	14	15	16	17	18
Lnrem	-0.0137	-0.144	0.0051	0.0543	0.171	0.308
Lninv	-0.0782	-0.289	-.356*	-.35**	-.585**	-.555**
Lnhc	0.0697	0.14	0.396	0.425	.775*	.897**
Infl	0.0001	0.00052	.00062*	.00061*	.00111*	0.00102
Intrt	-0.00505	-0.00493	-.00682*	-.00585*	-.00691**	-.00789**
Lnexr	0.0381	0.0231	0.0127	0.019	-0.0206	0.00779
Pol	-0.00597	-0.00372	-0.00419	-0.00492	.282*	0.187
Cor	.136***	.115**	.118**	0.227	0.405	0.419
Lod	-.0298*	-.0393**	-.0386**	-.0394**	-.0504***	-.138**
Lnopen	-.104*	-0.119	-0.0795	-0.0852	-.108*	-0.094
Lngdp	0.47	.615**	.637**	.593**	.759***	.735***
L.lnpov	.737***	.669***	.662***	.653***	.603***	.563***
Reminv		0.0104	0.0142	.0138*	.0264*	.0243*
Remhc			-0.0145	-0.017	-0.033	-.0415*
Remcor				-0.00816	-0.019	0.019
Rempol					-.0172**	0.0118
Remlod						.0055*
_cons	-4.65	-4.45	-7.45*	-7.47	-12*	-13.6**
r2	0.957	0.96	0.961	0.96	0.964	0.964
r2_a	0.929	0.931	0.929	0.923	0.925	0.919
Hansen overid (chi-sqr)	10.4557	12.3202	14.8192	14.6794	14.4468	12.8192
Hansen overid (p-value)	0.3401	0.3188	0.4004	0.404	0.417	0.3188

Note: *, **, *** shows significance at 10%, 5% and 1% level

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