

# Remittances, Capital Flight and Poverty: Lessons from Nigeria

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## Abstract

*It has been noticed in recent times that Nigeria is one of the highest recipients of remittances as well as one of the worst hit by capital flight. It is also obvious from literature that remittance should impact positively on development outcomes while capital flight is expected to impact negatively. In view of Nigeria being at the extreme of these two counter variables, this paper examines the relative impact of remittances and capital flight on poverty in Nigeria. Time series data on variables of interest were obtained from various sources spanning from 1970 to 2010. The data were subjected to series of econometric analysis. The results revealed that a 1 percent rise in remittances can only increase per capita consumption by 0.27 per cent. While a 1 per cent rise in capital flight would reduce per capita consumption by 10.8 per cent. This implies that the impact of capital flight on per capita consumption is greater than that of remittances. Hence, the study recommended that policy should be geared towards reducing capital flight.*

**Keywords:** Poverty, Remittances, Capital, Flight and Nigeria.

**JEL CLASSIFICATION:** D78, E22 and F65.

## I. INTRODUCTION

In all of Nigeria's National Development Plan (specifically, 1962 till 2014), there had been a deliberate design to ensure that the state is actively involved in economic activities, directly or indirectly by providing the necessary infrastructures. The objective of providing basic infrastructures became necessary in order to lay a foundation for sustainable and all inclusive long term development for the benefit of a larger proportion of the population and society. The main thrust of these development plans is to maximize the benefits of economic development for all. Unfortunately, due to adhoc and ill conceived policy implementation by government and its agencies, Nigeria's progress towards achieving this goal has fallen short of expectations. This is becoming obvious as the country lags behind on the goal of reducing extreme poverty and hunger which is at the core of development. Poverty in Nigeria has persisted for a very long time despite innumerable government's efforts towards addressing it. Official statistics reveal that the

proportion of population below the poverty line of one dollar per day was 27 % in 1980 with a total population of 65 million people, 66% in 1996 with a total population of 102 million people and an insignificant decrease to 62% in 2010 with a population of approximately 188 million (NBS, 2014).

In the light of all these, the growth rate of gross domestic product (GDP) in the last 10 years had been relatively impressive, averaging 6.5% (CBN, 2013). Ordinarily, it is expected that inflation and unemployment rates would have been low but the reverse is the case. Thus, suggesting a condition of declining per capita income, deteriorating social service which partially confirms that standards of living are falling. Most analysts have suggested that a prerequisite for achieving many of these worthwhile objectives contained in the national development plans is massive investment in social overhead capital (SOC) and later in directly productive activities (DPA). But these massive investments require adequate capital to drive the process and which cannot be sufficiently sourced locally or in the domestic economy. Thus, suggesting the need for external finance to drive the investment process.

There are many sources of external finance, ranging from aid, loan, foreign direct investment and remittances, to mention but a few. Most of these foreign sources of finance have stringent terms and conditions attached while others do not. Remittances (defined as the fraction of international migrant workers' pay packet sent back from the country of employment to the country of origin, Shivani and Tineke 1999, ILO 2000) stand out as one of the long lasting and potential source of external finance devoid of stringent terms and conditions. This is more so given the fact that several developing countries such as Mexico, India and the Philippines had long taken advantage of remittances to boost their economic growth respectively (Englama, 2007). In Nigeria, remittances are gradually being recognized as a viable sources of finance for domestic economic activities thus the need to enhance its inflow. According to the World Bank (2001, 2008), Nigeria is the leading recipient of remittances in sub-Sahara African countries. Specifically, the country collects 65% of officially recorded remittances flows to the region and about 2% of global remittance flows. These statistics may have

changed between 2010 and 2014 but the pattern remains the same especially given the fact that under reporting of remittance flows to Nigeria is still common due to deficiencies in data compilation and growing informalization of conveyance mechanisms.

There had been mixed views of optimism and pessimism on the beneficial effects of remittances in the economy. Taiwo (2007) outlined the potential benefits of remittances to include the long term prospects if utilized efficiently especially where it is used to finance health, education, and investments. It could also be used in alleviating credit limitations and act as a substitute for financial development. It thus, enhances further production, increased employment of inputs, boosts per capita income and consequently diminishes poverty and income inequality. The positive effects of remittances notwithstanding, it is equally believed that there could be disenchantment in the remittance-receiving country if they are used for ostentatious consumption and importation of luxury goods, thereby aggravating the country's balance of payments difficulties. The theoretical benefits of remittances notwithstanding, it is widely argued that the net benefit of remittances may likely be wiped out in the light of the growing size of capital flight relative to remittances as witnessed in Nigeria. Ayadi (2008) opined that the value of wealth lost in capital flight in Nigeria is the highest in Sub-Saharan Africa. Available statistics indicate that between 1970 to 1990 and 1995 to 2013, a total of 4709.3 billion dollars and 12,172.6 billion dollars are lost in Nigeria in the mode of capital flight respectively (Boyce and Ndikumana, 2012, World Bank, 2013). The negative impact of capital flight on the economy is well documented in the received literature. It includes but not limited to the reduction of the capacity of a country to adequately mobilize domestic capital necessary to drive economic growth. Obviously, an increase in capital flight is regarded as the inability of a country to efficiently assemble and retain its domestic financial resources (UNCTAD, 2007).

Boyce and Ndikumana (2012) had defined capital flight as residents' capital outflows, excluding recorded investment abroad. Capital flight from Africa has recently been put at the forefront of the development policy argument because of the increasing need for the mobilization of domestic resources for investment. These resources are needed for spending on programs and activities that are capable of increasing the welfare of its citizens (Ajayi, 2014). It is obvious that as long as capital flight exists, efforts to alleviate poverty and boost economic growth will be a mirage. In spite of the recent growth experience of Nigeria as already mentioned, it is still experiencing large Capital

flight. The amount of financial resources lost as capital flight between 1970 and 2010 exceeds official development aid of 659 billion dollars and foreign direct investment (FDI) of 306 billion dollars respectively. Emphatically, Capital flight undermines investment and hence economic growth and sustainable development. It undermines government social expenditure, revenue and meeting the Millennium Development Goals (MDGs) targets in which poverty reduction is one. It is the need to achieve sustainable development and eradicate poverty that has necessitated the need to curb capital flight. In a nutshell, capital flight reduces the amount of resources available for investment that would have increased the stock of productive capital. While remittances increases the amount of resources available for investment thereby increasing the stock of productive capital.

Given these scenarios, where large capital outflows (capital flight) occurs side by side with large capital inflows (remittances) in Nigeria, this study reviews the dynamic impact of remittances and capital flight on poverty in Nigeria within the framework of cointegration and error correction paradigm. Which of these capital flows should be a viable policy option for Nigeria in reducing poverty? Should effort be concentrated on putting in place a mechanism to enhance remittances or to reduce capital flight? Much progress in the literature is concentrated on assessing the impact of remittances or capital flight on economic development. The literature on the net/relative impact of remittance and capital flight on poverty (which is at the core of development) in Nigeria had been quite scanty. Thus Poverty specific case study is necessary for informed and evidence-based policy towards poverty reduction as well as achieving all round development in Nigeria.

The rest of the paper proceeds thus: section 2 explores the conceptual, empirical and theoretical issues on remittances and capital flight and in section 3, an overview of remittances, capital flight and poverty in Nigeria is provided. While the methodology, model and data of the study are captured in section 4, empirical results are presented and discussed in Section 5. Section 6 concludes the work with some policy recommendations.

## **II. CONCEPTUAL ISSUES**

### **A. Remittances**

There has been a plethora of literatures on the definition of remittances. Harrison (2003) and DFID (2003) defined remittances as the sum of workers' earnings and compensation of employees and migrants' transfer. A different definition of remittances was given

by Levitt (1996) to include ideas, practices, identities and social capital that flow as social remittances. According to Englama (2007), countries have opted for the definition in the Balance of Payments Statistics Yearbook (BOPSY) of the International Monetary Fund (IMF) in order to avoid the complexity and vagueness surrounding the actual meaning of remittances. Thus, remittances are defined as the sum of three components: workers' remittances, compensations to employees and migrant transfers. In a nutshell, remittances can be defined as the inflow that results from migration (Englama, 2007).

### B. Capital Flight

Cuddington (1986) defined capital flight as a short term private capital outflow that responds not only to political crisis but also to economic policy failure. This definition focuses on the speculative aspect of capital flight. Nyong (2005) opined that these definitions are informative but they fail to capture other aspects of the phenomenon. Nyong, (2005) defined capital flight to include any form of abnormal capital outflow from a developing country by economic agents (private or public) with the intention of concealing such flows. It is abnormal given the fact that this capital is flowing from capital scarce countries to capital surplus countries. In international economics, three approaches to the measurement of capital flight have been documented. These include the balance of payment approach, the residual approach and the bank deposit approach.

### III. REMITTANCES, CAPITAL FLIGHT AND POVERTY IN NIGERIA: STYLIZED FACTS

Nigeria is among the top recipient countries of remittances after India, China, Mexico and the Philippines. According to the World Bank (2008), Nigeria is the biggest recipient of remittances in sub-Saharan African countries. Nigeria receives about 65 per cent of officially recorded remittance flows to the region and about 2 per cent of global remittance flows, with a total of 54 per cent from the United States. Saudi

Arabia is the second largest source followed by Switzerland and Germany. Taiwo (2007) put the demographic remittances in Nigeria at a population of about 145 million as at 2007. According to Taiwo, (2007), it is projected to grow at an average rate of 2.6 per cent per annum. Until recently, development agencies had paid little or no attention to the impact of remittances on basic macroeconomic variables based on the assumption that remittances were used to finance consumption and not investments. It is well documented in literature (Englama, 2007 and Taiwo, 2007) that domestic consumption financed from remittances has multiplier effects and at the macroeconomic level, it also serves as a significant source of foreign currency in Nigeria.

In spite of the huge inflow of remittances into developing countries (including Nigeria), It is documented in the received literature (Ajayi, 1997, Ndiaye, 2010 and Ajayi and Ndikumana, 2014) that capital flight from resource rich (especially, oil rich) countries is relatively higher. Eurodad (2008) estimated the amount of capital flight from African continent to be more than \$13 billion per year between 1991 and 2004 representing approximately 8 per cent of the annual GDP of the region. It is a widely held view by scholars (Ajayi, 1997) that illegal capital outflow from developing countries is relatively higher than capital inflow. A look at table 1 shows that capital flight as a percentage of GDP (unlike remittances as a percentage of GDP) had been on the increase between 1970 to 1990. Surprisingly, from 2000 to 2010, remittances as a percentage of GDP marginally increased much more than capital flight. This increase seems not to be reflected in the poverty level as poverty rate within the past forty years is on the average of 59 per cent despite the average GDP growth rate of 6.5 per cent in last ten years. As a matter of emphasis, the population below the international poverty line in Nigeria as at 2009 is 64.5 per cent, while South Africa and Cameroun have 26.5 per cent and 32.8 per cent respectively (World Bank, 2009). This is a very sharp contrast between Nigeria and other two developing African countries.

**Table 1: Estimates Of Remittances And Capital Flight As Percentages Of GDP In Nigeria.**

Year	Remittances as a % of GDP	Capital flight as a % of GDP	Poverty rate (Headcount ratio)	Real GDP growth rate	Population in millions
1970	0.009	4.029	N.A.	30.8	56.5
1980	0.024	6.824	28.1	5.3	65.5
1990	0.034	3.387	44.0	13.0	97.3
2000	3.868	0.011	80.9	5.40	124.8

2010	10.06	0.063	69.0	6.50	188
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Source: Columns 2, 3 & 5 are Computed by the authors while Columns 4 & 6 were sourced from NBS, 2014.

Figure 1 reveals an undulating trend in capital flight (CAF) and remittances (REM) growth rates while a relatively stable trend is maintained by poverty (POV) growth rate. There seem to be a strong correlation between capital flight and poverty as depicted in figure 1. Despite the assumed increases in remittances over the years, it seems not to have impacted significantly

on poverty as a relatively linear trend is noted in poverty. Remittances peaked in 1993 then declined continuously till 2005 when it increased. Capital flight continues to maintain an upward trend matching remittances. As a matter of emphasis, poverty and capital flight have almost the same growth trend from 2006 to 2010.

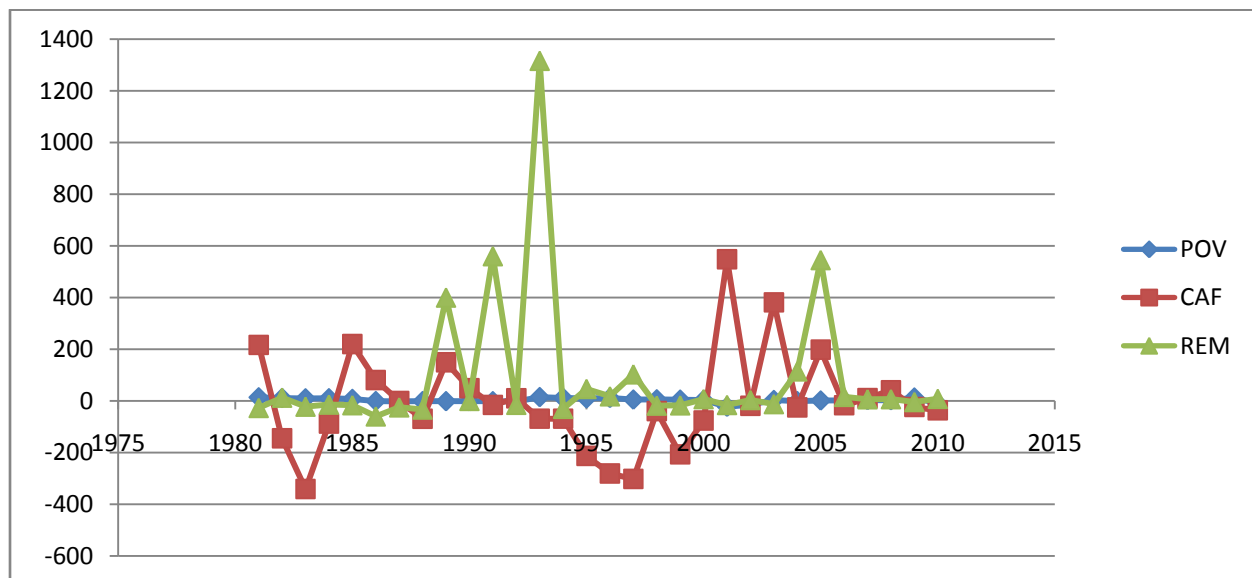


Fig. 1: Annual growth rates of Poverty (POV), Capital flight (CAF) and Remittances (REM)  
(Note: Annual Poverty growth rates is based on Head count ratio)

#### IV. EMPIRICAL AND THEORETICAL ISSUES

##### A. Remittances and Poverty

The impact of remittances on macroeconomic variables (such as poverty, unemployment, investment, consumption, economic development etc) as found by most studies had been mixed over the years. Englama (2007), Carrasco and Ro (2007) descriptively asserted that apart from remittances serving as a potential source of capital accumulation through savings and investments, it also reduces inequality and poverty. According to them (Englama 2007, Carrasco and Ro 2007), remittances increase the resources available to developing countries and thereby increasing the demand for goods and services. The increase in the utilization of durables and non durables or other social infrastructures (education, health, housing etc) produces a positive impact on poverty reduction vis-à-vis human development. This is because remittances flow directly

to the household thus helping to maintain the family and provide social security. In the same vein, Shahbaz, Qureshi and Aamir (2007) who empirically investigated the impact of remittances on financial sector development in Pakistan using Autoregressive distributed lag (ARDL) model discovered that remittances improves per capita income levels. The increase in per capita income levels also increases per capita consumption expenditure. This is by loosening liquidity constraints and making funds readily available for potential entrepreneurs to start income earning economic activities. Further, Adams and Page (2003) using ordinary least squares and a data set of 74 low and middle income less developed countries discovered that remittances have a statistically significant impact on poverty reduction. This is further confirmed by the fact that rural areas in less developed countries tend to benefit the most because a greater percentage of the world's migrants come from the country sides.

Research on the impact of remittances on poverty using household data in Guatemala was carried out by Adams (2004). The results of the study suggest that these transfers aid in the reduction of poverty level of households. Lopez-Cordova (2005) and Taylor, Mora and Adams (2005) carried out a similar study in Mexico using household data and arrived at the same conclusion that remittances enhance poverty reduction. In a study by IMF (2005) titled “Remittances: Development Impact and Future Prospects”, 101 countries were analyzed over the period 1970 to 2003. The results of this study further corroborated the fact that remittances had the capacity of reducing poverty. There exist plethora of studies (Shahbaz, Qureshi and Aamir, 2007; Yang, 2006; Orozco and Fedewa, 2005 and Beck, Demircuc-kunt and Levine, 2004) that tend to buttress the fact that in as much as remittances promote financial sector development, in the long run, it also leads to lower levels of poverty and inequality. This is based on the notion that remittances transferred through financial institutions paves the way for recipients to demand and gain access to other financial products and services they might not have otherwise. This access to other financial services or products can foster income earning investment activities which will ultimately boost per capita consumption expenditure. From the reviews, it is obvious that that every dollar received from migrants working abroad leads to increase in economic growth (Gross National Product - GNP). The increase in economic growth (GNP) is likely to have a trickle-down effect on the welfare of the citizens in terms of increase in per capita income thereby reducing the level of poverty.

Contrarily, Chami et al (2003), used a panel of 113 countries over a period of thirty years and discovered that remittances weakens the recipients’ desire to work and therefore, leads to voluntary unemployment. This ultimately leads to poverty and downturn in economic performance. In a related study, Taiwo (2007), Rajan and Subramanian (2005) are of the view that excessive reliance on remittances carries the risk of encouraging wasteful spending which may not directly improve citizens’ welfare. IMF (2005) found the lack of correlation between remittances and poverty vis-à-vis development at least at the country level. The overall argument is that remittances are not completely devoid of inherent economic dangers.

### **B. Capital Flight and Poverty**

It is well documented that Sub-Saharan Africa is not only burdened with debts but the region is also aid dependent. For the past four decades, larger amount of money has fleeced the region to the rest of the world more than it has received from the rest of the world. Presently, the capital account of many African countries

including Nigeria is a paradox, with the twin occurrence of high external debt and substantial deficiency of financial resources in the form of capital flight. Boyce and Ndikumana (2012) put the total cumulative amount of capital flight from the region over the past four decades at 84.2 percent of official development assistance (ODA) and foreign direct investment (FDI) combined. Thus, the region is a “net lender” to the rest of the world. They (Boyce and Ndikumana, 2012) further explained that capital flight frustrates countries’ efforts to boost domestic resource mobilization, reduces government revenues, thereby undermining poverty reduction efforts of governments. In a related study on “Capital flight and Economic growth in four African Countries using ordinary least squares method, Nyong(2005) had discovered that the large size of capital flight which leaked out of the countries conspired with their heavy debts burden to induce poor economic growth with adverse consequences for employment generation and poverty reduction.

Ndiaye (2009) identified five channels through which capital flight can induce a decline in domestic investment with adverse consequences of unemployment and poverty. These channels include the domestic private savings channel, the public policies uncertainty channel, the speculative bubble channel, the capital inflows channel and the corruption channel. According to Ndiaye (2009), the negative influence of capital flight (as found in the Franc zone of Africa) operates through the private investment channel more than the public investment channel. In the same vein, Umoru (2009) investigated the impact of capital flight on economic growth in Nigeria using ordinary least squares. Umoru, (2009) discovered that capital flight significantly impacts adversely on economic growth. Umoru, (2009) further concluded that such a negative impact of capital flight implies that the trickle down effects (the benefits) of economic growth which include but not limited to poverty reduction is likely not to be achieved in Nigeria.

Generally, the empirical relationships between capital flight and macroeconomic variables have been studied both in Nigeria and outside. Ajayi (1999), Cuddington (1986) (to mention but a few) have all agreed that capital flight is destructive as it widens fiscal deficits to the extent that deficits are most often financed by printing money. This in turn engenders domestic inflation which ultimately worsens the level of poverty. Ajayi (1997) summarized the negative consequences of capital flight in Nigeria to include a reduction of growth potential, erosion of the tax base and reduction of domestic capital for investment. All these combine to ultimately reduce the welfare of the

citizens. Interestingly, the assessment of the impact of capital flight on poverty is not by any means a straight forward analysis. Nkurunziza (2012) had argued that the effect of capital flight on development indicators such as poverty can be viewed in terms of forgone investment in some poverty reducing programs on health, education and job creation. That is why capital flight is viewed as a diversion of domestic savings away from financing domestic real investment. As a result, the rate of economic growth and development is reduced. This may lead to a reduction in both current and future level of output. In a descriptive analysis, Dooley (1986) demonstrated that capital flight leads to acute shortage of revenues (capital) to finance infrastructure, essential public services and other critical development programmes geared to foster wealth redistribution. This, in the long run precipitates poverty and disease among the masses.

It must also be noted that as capital flight occur in a country, two things happen. Firstly, it widens the resource gap faced by the country and may make the country to be chronic foreign aid dependent. Secondly, the deepening of resource gap may also slow down capital accumulation and long run economic growth which is supposed to have a positive trickle-down effect on the populace (Ajayi, 2014). From the received literature, it is obvious that capital flight hinders capital accumulation necessary for investment. That investment is a significant determinant of economic growth and development is not disputable. Thus, as investment reduces, economic growth is slowed down. As economic growth is slowed down or becomes stagnant in worst case scenario, output or income or productivity is reduced. This has the tendency of worsening poverty and poverty reducing efforts. African Development Bank (2012) has stated unequivocally that capital flight has effects on income not only in the year it left the country but also in subsequent years. AfDB (2012) also further stated that if all capital flight had been invested (with productivity of capital remaining the same), poverty in Africa would have been lower than what it is in most African countries. The above analyses seem to suggest that for Nigeria to meet one of the sustainable development goals of poverty reduction, capital flight must be curtailed.

### **C. Theoretical Issues**

In this study, four relevant theories are reviewed, two explaining the concepts of capital flight and remittances respectively and two explaining poverty. These theories include; the tax-depressing thesis of capital flight, the two gap theory (remittances), Trickle-down theory of poverty and Vicious circles of poverty.

According to Nyong (2005), the Tax-depressing thesis explains the consequences of capital flight to include loss of revenue. This theory postulates that capital flight leads to potential revenue loss because wealth held abroad are outside the control of government and cannot therefore be taxed. The fall in government revenue complicates the task of governance to promote economic development with poverty alleviation. This scenario leads to increases in debt burden and a reduction in government capacity to provide welfare maximizing and poverty reduction facilities.

The Two-gap theory as put forth by Chenery and Strout (1966) states that savings gap and foreign exchange gap are two separate and independent constraints on the attainment of a target rate of growth necessary for economic development in developing countries. Chenery and Strout (1956) see foreign finance (perhaps, remittances) as a way of filling these two gaps in order to achieve the target growth rate of the economy. This theory has been criticized for not considering the absorptive capacity of the economy and the ability to formulate and execute productive projects with foreign finance by developing countries.

The Trickle-down theory of poverty is of the view that as the economy grows; it trickles down to the other facets of the society thereby reducing the rate of poverty. Thus central in this analysis is the trickle-down effect of economic growth. This theory is associated with the works of Kraay (2004), Dollar and Kraay (2000) and Lopez (2004). This theory places much emphasis on the role of output/income growth as a key to reducing poverty. However, this theory has been criticized on the grounds that there is nothing automatic in output/income growth which guarantees a reduction in poverty level. Besides, it is equally argued that poverty reduction in one segment of the society may lead to an increase in poverty in another segment. Jhingan (2003) opined that poverty cannot be seen as purely an income problem given that low income or insufficient income/output is a consequence rather than a cause of poverty.

The Vicious Circles of Poverty demonstrates the circular relationships that tend to perpetuate the low level of development in Less Developed Countries (LDCs). This theory explains a circular constellation of forces tending to act and react upon one another in such a way as to keep a poor country in a state of poverty. The basic vicious circle stems from the fact that in LDCs, total productivity is low due to deficiency of capital, market imperfections, economic backwardness and underdevelopment. The vicious circle operates both on the demand side and the supply side. The demand

side of the vicious circle is that the low level of real income leads to a low level of demand which in turn leads to a low rate of investment and hence back to deficiency of capital, low productivity and low income. On the supply side, the low level of real income means low saving. The low level of savings leads to a low investment and to deficiency of capital. The deficiency of capital, in turn, leads to a low level of productivity and back to low income. In all, it is obvious that low income ultimately leads to low productivity and vice-versa. This situation as it relates to a country can be summed up as a country is poor because it is poor. Poverty as seen in this analysis is self-perpetuating. The theory implicitly stresses that the “poor” can escape from poverty if there is an improvement in their income. The improvement can only be achieved and sustained if population growth is checked (Duru, 2003). This theory has been criticized as invalid due to its conclusively refuted by empirical evidence. It is refuted by the existence of developed countries that all started poor with low incomes (individual/national). But they have advanced, usually without appreciable outside capital and invariably without external grants (Jhingan, 2003).

#### V. THE MODEL AND DATA

The elementary objective of this study is to quantitatively determine the net impact of remittances and capital flight on poverty in Nigeria. The period of analysis covers 1970-2010. This is the longest period for which numerical data is readily available and accessible (specifically, for Capital flight). The econometric approach is based on a time series data regression. To achieve this objective, a base line model anchored on the vicious circles and trickle-down frameworks/ theories of poverty in relation to capital flows is formulated, specified and estimate over the period as earlier mentioned. The functional form of the model is specified as:

$$POV = f(REM, CAF, CPI, GDP, DEB) \quad (1)$$

Where:

POV = Poverty rate as measured by Per Capita Consumption Expenditure

REM = Remittances in millions of dollars.

CAF = Capital flight in millions of dollars measured by the residual approach (source:

Boyce and Ndikumana, 2012)

CPI = Consumer price index

GDP = Economic growth as measured by growth rate of gross domestic product

DEB = Dependency burden or ratio.

The basic relationship to estimate is a dynamic linear version of Equation (1) and is of the general econometric form:

$$\ln POV_t = a_0 + a_1 \ln REM_t + a_2 \ln CAF_t + a_3 CPI_t + a_4 GDP_t + a_5 DEB_t + E_t \quad (2)$$

All the variables are as previously defined.  $E_t$  and  $\ln$  are error term and log of the variables respectively. The sign of all the elasticity coefficients are expected to be negative except for remittances and economic growth that are expected to be positive. Remittance (REM) is a potent weapon for confronting deficiencies in critical sectors such as infrastructural development, agriculture, health, education and rural development. It has the capacity of improving a country's income level which may lead to improvement in investment and productivity. Hence, an improvement in productivity can aid countries to escape from poverty as explained by the vicious circles of poverty. This variable is expected to have a positive effect on per capita consumption expenditure (poverty). On the other hand, capital flight (CAF) dampens a country's ability to mobilize resources necessary for inclusive economic growth. Capital flight depletes a country's income level. Low income levels lead to a low investments and low productivity (output). This is clearly demonstrated in the vicious circles of poverty. Thus, a negative relationship is expected between poverty and capital flight. A negative a priori sign is assumed for consumer price index (CPI) and poverty in this study. Consumer price index is a control variable which accounts for the structural bottlenecks that hinder increase in per capita consumption expenditure (poverty). Also, direct and positive relationship is expected between growth rate of gross domestic product (economic growth) and poverty. Economic growth is assumed to have a positive trickle-down effect on the welfare of the people as explained by the trickle-down theory of poverty. Dependency burden (DEB) which measures the proportion of the population that is economically unproductive is included in the model in order to capture the pressure of the proportion of this population on the economically productive population. If the pressure is high, it is likely to worsen the level of poverty. The inclusion of dependency burden is based on the fact that an improvement in income level can only be achieved and sustained if population growth is checked. This is explained in the vicious circles theory of poverty. Thus, a positive a priori sign is expected between dependency burden and poverty. The overall result would underscore the relative importance of remittances and capital flight in determining the level of poverty in Nigeria and the need for evidence based policies.

This paper adopted the co-integration and error correction modelling to investigate the relationship between poverty and other explanatory variables as specified above from 1970 to 2013. This is necessary in

order to allow for dynamic specification and estimation of the model. Given data instability in Nigeria occasioned by policy instability cum economic disruptions etc, it becomes increasingly useful to test the time series property of the variables included in regression analysis for meaningful economic results. The paper adopts the general to specific approach to arrive at the parsimonious estimate by eliminating jointly insignificant variables. The error correction term shows the speed of adjustment to restore equilibrium in the dynamic model. In particular, the ECM coefficient shows how quickly variables converge to equilibrium and the ECM term is expected to have a negative sign (Udah, 2010).

A time series data set was obtained from different sources. The data on poverty (per capita consumption expenditure, POV) is calculated by the authors based on data from CBN statistical Bulletin, 2013 and NBS 2014. It is calculated as consumption expenditure divided by the population.

Economic growth (changes in realGDP) data were obtained from the Central Bank of Nigeria Statistical bulletin (2013), while the data on dependency burden or ratio (DEB), Consumer Price Index (CPI), remittances (REM) were obtained from World development indicators (2013) and World Bank (2013). Capital flight (CAF) data is from Boyce and Ndikumana (2012).

## VI. PRESENTATION AND DISCUSSION OF RESULTS

### A. Presentation of Results

In literature, most time series variables are non stationary and using non-stationary variables in the model may result to spurious result (Granger and Newbold, 1977). The first or second differenced terms of most variables will usually be stationary (Ramanathan, 1992). From table 5.1, all the variables are tested at levels for stationarity using the Augmented Dickey-Fuller (ADF). All the variables are stationary at first difference except inflation rate which is stationary At Levels.

Table 2: ADF Unit Root Test

Variables	ADF Statistics (Computed)		5% Critical Value		Remark
	Level	1 <sup>st</sup> Difference	Level	1 <sup>st</sup> difference	
POV	-1.444319	-4.066642	-2.9320	-2.9339	I(1)
CAF	-1.310726	-6.105927	-2.9320	-2.9339	I(1)
DEB	-0.941850	-3.861277	-2.9320	-2.9339	I(1)
GDP	-1.009011	-4.162362	-2.9320	-2.9339	I(1)
CPI	-2.874011	-3.329312	-2.9320	-2.9339	I(1)
REM	-2.112968	-3.206561	-2.9320	-2.9339	I(1)

Source: Computed by authors using E-views

Table 3: Cointegration Test And Results

Null Hypothesis: ECM has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on t-statistic, lagpval=0.1, maxlag=0)

t - Statistic Prob.\*

Augmented Dickey-Fuller test statistic	-2.775414	0.0068
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Test critical values:	1% level	-2.627238
	5% level	-1.949856
	10% level	-1.611469

Source: Authors' Computation.

Since the study is dealing with a single equation, the cointegration analysis is based on Augmented Dickey-Fuller Engle-Granger method

(AEG) (1987). In order to find out whether the variables are cointegrated or not, we simply carry out a unit root test of the residuals obtained from estimating the general model. Once the residuals are found to be stationary at levels (that is integrated of order zero –



I(0), it means that our variables are cointegrated and have long run or equilibrium relationship between them. From the result on table 3, it is clear that absolute value of ADF test statistic (2.775414) is more than the critical value at 5 per cent, meaning that the null hypothesis is rejected. To reject the null hypothesis

implies that the residuals have no unit root problem; i.e., they are stationary. It can therefore be concluded that, based on the AEG method, the variables are cointegrated. Thus, there exists long-term relationship between them. Therefore, the dynamic analysis of the model is as shown in table 5.3.

**Table 4: The Parsimonious Error-Correction Model**

Dependent Variable: LOG(POV)

Sample(adjusted): 1973 2010

Included observations: 37

Variable	Coefficient	Std. Error	t-Statistic	Prob
D(LOG(POV(-1)))	6.121374	2.030151	3.015231	0.0200*
D(LOG(REM))	0.267743	0.086663	3.089476	0.0301*
D(LOG(REM(-1)))	0.940281	4.584771	0.205088	0.8391
D(GDP)	0.245984	0.052801	4.658706	0.0059*
D(CPI)	-0.046808	0.316813	0.147745	0.8837
D(DEB)	-1.710817	0.516016	-3.315434	0.0143*
D(LOG(CAF))	-10.80430	4.195275	-2.575350	0.0150*
ECM(-1)	-0.434106	0.061405	-7.069554	0.0000*
C	47.08577	8.124343	5.795640	0.0000*

R-squared = 0.681078; Adjusted R-squared = 0.670193; S.E = 26.62707; F = 15.09112; D.W. = 2.198633. Note: \*significant at 5 per cent. Source: Authors' computation.

The result of parsimonious model is reported in Table 5.3. The parameters estimate along with the standard errors, t-values and the corresponding critical values are given in the table.

An important feature to notice is the coefficient of the parameter of error correction term. The coefficient of the error-correction term carries the correct sign and it is statistically significant at 5 per cent with the speed of convergence to equilibrium of 43 per cent. In the short run, poverty is adjusted by 43 per cent of the past period's deviation from equilibrium. This is essential for maintaining long-run equilibrium to reduce the existing disequilibrium over time. It is advisable that this result be interpreted with caution.

In table 5.3, the lagged coefficient of poverty has a positive and significant relationship with poverty. A 1 per cent rise in last year's per capita consumption expenditure increases the current level of per capita consumption expenditure by 6.1213 per cent. Remittances (both current and lagged coefficients) have a positive relationship with poverty. Only the current coefficient of remittances is significant at 5 per cent level. Thus a 1 per cent rise in remittances (both current and lagged) would lead to an increase in per capita consumption expenditure (that is a reduction in poverty level) by 0.026774 per cent and 0.94028 per cent respectively, all things being equal. This is in line with Englamana (2007) and Carraasco and Ro (2007) who

asserted that remittances have positive impact on poverty reduction vis-a-vis human development. Also, gross domestic product, which measures economic growth, has a positive relationship with poverty. Thus, a 1 per cent rise in economic growth would lead to 0.24598 per cent reduction in poverty. The current coefficients of consumer price index (CPI), dependency burden (DEB) and capital flights (CAF) have negative relationship with poverty. Only dependency burden and capital flight have significant relationship with poverty. A 1 per cent rise in consumer price index, dependency burden and capital flight would increase the poverty level by 0.0468 per cent, 1.7108 per cent and 10.8043 per cent respectively.

The adjusted R<sup>2</sup> shows that about 67 per cent of the total variation in poverty is determined by changes in the explanatory variables. Thus, it is a good fit. The F-statistics (15.1) indicates that all the variables are jointly statistically significant at 5 per cent level. The Durbin Watson statistics of 2.1 reveals that it is within the acceptable bounds, thus it is good for policy analysis.

### B. Discussion of Results

The parsimonious results show that the lagged coefficients of poverty has the correct or expected *a priori* sign and statistically significant. This strongly underscores the fact that the current level of poverty is determined by previous level of poverty in Nigeria.

This gives credence to the vicious circles of poverty that you are poor because you have been poor. Interestingly, the current coefficients of remittances and capital flight are not only correctly signed but are also statistically significant. This buttresses the fact that remittances and capital flight impact on the level of poverty in Nigeria. As a matter of emphasize on the relative impact of both variables on poverty, capital flight has a greater impact on poverty than remittances in terms of the magnitude of their coefficients. Specifically, the magnitude of capital flight is 10.8043 per cent against 0.02677 per cent of remittances. Thus, relatively, capital flight impacted ten times more than remittances. This supports the work of Ajayi (1997) and Ndiaye (2010) that capital outflows (capital flight) from developing oil rich countries are relatively higher than capital inflows (remittances). Given this scenario, the relative impact of capital flight on poverty in Nigeria may not be completely unconnected with the differences in capital flows. The results also support the findings by Boyce and Ndikumana, (2012) who concluded that capital flight undermines poverty reduction efforts.

The coefficient of economic growth is not only positive and statistically significant; it is also consistent with economic theoretical expectation. This shows that an increase in economic growth will have a trickle-down effect on the level of poverty in Nigeria, all things being equal. This is more so as an increase in economic growth may have a positive trickledown effect on the populace. Dependency burden and consumer price index are correctly signed in the estimated model but only the dependency burden is statistically significant. This result is a testimony to the fact that dependency burden and consumer price index exacerbate the poverty level in Nigeria. Thus, the higher the dependency burden and consumer price index in Nigeria, the higher the level of poverty, *ceteris paribus*. In essence, the implication of the significance of dependency burden means that the pressure of the proportion of unproductive population on the productive population in Nigeria exacerbates the level of poverty or reduces the level of per capita consumption expenditure.

## **VII. CONCLUSION AND POLICY IMPLICATIONS**

This paper has examined the implications of the relative impact of remittances and capital flight on poverty in Nigeria by using contemporary econometric model. The model incorporates other macroeconomic variables (such as consumer price index, economic growth and dependency burden) that may have direct or indirect impact on poverty. The results confirm the hypotheses that remittances (current) and capital flight impact significantly on poverty in Nigeria. It was found

that the impact of capital flight is greater than that of remittances in terms of the magnitude of their coefficients. The lesser impact of remittances on poverty may not be completely unconnected with the fact that most remittances are misappropriated on non income yielding activities that do not have direct impact on poverty reduction.

Thus, the policy implications of these findings can be summarized as: first, there is need to put in place a mechanism that is capable of reducing all the socio-economic/structural distortions (such as inflation) in the domestic economy that encourage capital flight. This would go a long way in boosting the confidence of economic agents in investing or re-investing their funds in the domestic economy. Secondly, there should be sustained efforts to re-orientate the end users of remittances to use remittances on poverty reducing economic activities/investments that will engender economic growth. Finally, the significance of the dependency burden variable on poverty implies that there is need to implement policies that will create opportunities for the economically unproductive population to be economically productive in order to increase per capita consumption expenditure and eventually reduce poverty in Nigeria. By and large, if government should have a choice of policy between encouraging remittances and fighting capital flight, the choice of policy against capital flight should be chosen and deepened. This can be achieved through strengthening the quality of institutions to reduce illegal outflow of capital. The current effort by the “Buhari administration” in Nigeria to reduce “illegal capital” outflow is a welcome development.

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**Appendix I: Regression Data**

YEAR	REM	POV	DEB	GDP	CPI	CAF
1970	NA	114.31	83.14	30.8	0.1	-212.8
1971	NA	137.9	83.65	11.8	0.12	-712.1
1972	NA	157.08	84.21	3.8	0.12	839.8
1973	NA	175.56	84.77	8.5	0.13	4207.9
1974	NA	233.1	85.31	199.8	0.14	3050.8
1975	NA	293.88	85.78	70.7	0.19	3724.5
1976	NA	341.46	86.17	7.3	0.24	7104.1
1977	20	368.55	86.48	8.1	0.27	13565
1978	3	436.15	86.81	-7.3	0.33	5552.4
1979	8	469.2	87.23	2.5	0.37	1576.3
1980	22	534.6	87.8	5.3	0.41	3387
1981	16	607.56	88.55	550.5	0.49	10728
1982	18	663.3	89.4	-2.7	0.53	-4796.1
1983	14	720	90.27	-7.1	0.66	11569.3
1984	12	768.36	91.02	-1.1	0.77	1379.8
1985	10	865.08	91.56	9.5	0.83	4413.7
1986	4	1034.24	91.87	2.5	0.88	7980.4
1987	3	1218.06	91.97	-0.6	0.98	7945.8
1988	2	1702.5	91.9	7.4	1.51	2439.4
1989	10	1921.4	91.69	7.7	2.27	6081.4
1990	10	2227.08	91.37	13	2.44	9071.9
1991	66	2854.08	90.95	-0.8	2.75	7660.7
1992	56	4947.8	90.44	2.3	3.98	8440.3
1993	793	6174	89.87	1.3	6.26	2622.5
1994	550	5122.26	89.27	0	9.82	813.5
1995	804	7245.59	88.67	2.2	16.98	-918.9
1996	947	8121.19	88.07	4.4	21.95	1661.8
1997	1920	7836.62	87.5	2.8	23.82	-3356.8
1998	1570	9565.93	86.99	2.9	26.2	-2030
1999	1300	35778.34	86.56	0.4	27.93	2170.9
2000	1390	35432.17	86.24	5.4	29.87	517.6
2001	1170	51156.58	86.04	8.4	35.51	3356.5
2002	1210	73428.79	85.94	21.3	40.08	2723.1

2003	1060	90293.28	85.94	10.2	45.7	13106.9
2004	2270	106933.5	86.03	10.5	52.56	9812.1
2005	14640	134264.4	86.2	6.5	61.95	29263.4
2006	16932	129421.9	86.44	6	67.05	24307.3
2007	18011	191764.9	86.74	6.4	70.66	26908.4
2008	19206	185324.9	87.08	6.4	78.84	37990.8
2009	18368	215756.1	87.44	6.3	87.94	29029.3
2010	19818	256261.5	87.8	6.5	100	18454.6

POV = Poverty; REM = Remittances; CAF = Capital Flight; DEB = Dependency Burden  
CPI = Consumer Price Index; GDP = growth rate of realGDP.