



# Do migrant remittances trigger consumption disparity among Nigerian farm households?

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## Abstract

A few studies have linked remittances with income inequality. Perhaps because it is often conceived to have the same effects on income as well as consumption, little attention has been given to how remittances influence consumption disparity. In line with Debt Constraint Market (DCM) and Standard Incomplete Market (SIM) models, it was found that effect of remittances on consumption disparity was not significant among Nigerian farm households. In contrast to the Gini index, Theil index with perfect subgroup decomposability was employed in the inequality analyses. The study retrieved secondary cross sectional data from Nigerian National Surveys.

**Keywords:** Remittances; Welfare; Consumption; Inequality

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## 1. Introduction

Remittances are important economic concomitants of migration. Orozco (2007) and IFAD (2007) defined them as the proportion of migrants' earning sent back home from the destination of employment to the origin of the migrants. Development reports showed that the volume of remittances to developing countries have been growing significantly over the years. World Bank (2008) submitted that Nigeria was the highest receiver of remittances in Africa and the thirteenth in the World. The large and growing number of Nigerian migrants worldwide in the last decade explained partly, this huge volume of remittances.

The main role of remittances in sub-Saharan Africa and South Asia is to stimulate household consumption and investment (Osili, 2007 and Siddiqi, 2008). Households with remittance income seem to have better access to food and nutrition (Oseni and Winter, 2009 as cited in Babatunde and Martinetti, 2010). Also, 61 percent of a group of Nigerians in diaspora remit for sustenance of those at home (DFID, 2005). Remittances have the potential to alleviate food insecurity challenges thereby enhancing the welfare of the poor. The findings that international remittances had ameliorative effects on rural poverty in Western Nigeria (Olowa and Olowa, 2005) affirmed this view. Thus, remittances can foster the realisation of the Millennium Development Goal 1, "to eradicate poverty and hunger". Remittances are potential elements in Nigeria's medium-term economic strategies for tackling the nation's economic and structural problems and reduce poverty.

Contrariwise, several findings showed positive impacts of remittances on income inequality and many analysts including Martin (2005) argued that they contributed to a growing inequality. This inequality is particularly in poor rural areas, between the groups of people within the community who receive remittances and those who do not (Lindley, 2008). Thus, evidence from Egypt shows that despite the poverty reduction effect, remittances induced increased income inequality (Adams, 1991). Rodriguez (1998) as cited in Thao, (2009) observed that in the Philippines, remittances contributed in the 1980s to a 7.5% rise in rural income inequality. Household survey data from Pakistan reveal that the wealthier income groups were those who benefited the most from migrants' remittances (Adams Jr, 1995). Negative lost-labour effects of migration are concentrated in the agrarian sector. Meanwhile, most migrants are employed in this sector prior to migration (Lindley, 2008). Hence, remittances which are concomitant of migration will likely lead to income inequality between the agrarian sector and other sectors. Remittance may induce this inequality because positive remittance effects may manifest themselves in the non-agrarian sectors. Returns on investment in non-agrarian sector may be higher, and family labour demands lower than in the agrarian sector.

Although a few studies have associated remittances with income inequality, no visible research has explained the effect of remittance income on consumption inequality in Nigeria. Meanwhile, consumption distribution instead of income distribution is a stronger index of household welfare given the multidimensional elements of consumption. In an attempt to bridge the research gap, this study established the effects of migrant remittances on farm household consumption inequality in Nigeria.

The theoretical link between remittances income and consumption inequality" may be hinged upon Krueger's and Perri's (2005) Debt Constraint Market (DCM) and Standard Incomplete Market (SIM) Models.

These models theorise that an increase of income dispersion always leads to a smaller increase in consumption dispersion as long as there is some capital income. Krueger's and Peri's intuition behind these models is that by making exclusion from future risk sharing more costly, an increase in income inequality renders the individual rationality constraint less binding. It thereby allows individuals to share risk to a larger extent and thus reduces fluctuations in their consumption process. Hence, remittance induced income inequality will not translate into a proportionate consumption inequality. The non-remittance recipients for example, will employ other risk diversification strategies in an attempt to meet up with the prevailing level of consumption by the remittance recipients.

## 2. Methodology

### 2.1. Data collection

Secondary cross sectional data were drawn from the General Household Survey-Panel conducted in 2010/2011 and henceforth referred to as "GHS (2011)". The Nigerian Living Standard Survey done in 2003/2004 referred to in this work as "NLSS (2004)" was a supplementary data source. Both surveys were conducted by the Nigerian Bureau of Statistics in conjunction with the World Bank. The pooled micro-data of GHS (2011) and NLSS (2004) consist of 4,851 and 19,158 households respectively, giving a total of 24,009 households. Amidst other important data, these groups of data contain information on remittances received and household consumption expenditure over one year preceding the survey.

Subset of the micro data used for this research include 1070 households from NLSS (2004) which comprises of 982 households who reported receipt of domestic transfers. The subsets also include 44 households who reported receiving international remittances and 44 who did not report receipt of remittances. From GHS (2011), 158 households were selected (79 reported receipt of international remittances versus 79 did not report receipt of remittances). The total of 935 households who provided consistent data were used in the analyses from both NLSS (2004) and GHS (2011).

### 2.2. Analytical technique

Household's welfare is also measurable in terms of the relative contribution of the households' consumption to aggregate consumption (inequality of households' consumption). An approximate method for measuring how international or domestic remittances affect distribution of consumption among households is to decompose consumption inequality by household subgroups (e.g. remittance recipients versus non-recipients). The Gini Index is a good index for measuring between subgroups inequality because its appeal for decomposability is at medium level. However, the best candidates for decomposability are the Theil's first two measures.

Theil's first and second measures of inequality are depicted by equations 3 and 4 respectively.

$$T_1 = \frac{1}{n} \left\{ \sum \left( \frac{x}{\bar{x}} \cdot \ln \frac{x}{\bar{x}} \right) \right\} \quad (1)$$

$$T_2 = \frac{1}{n} \left\{ \sum \left( \ln \frac{x}{\bar{x}} \right) \right\} \quad (2)$$

Where  $n$  = sample or population size,  $x$  = consumption,  $\bar{x}$  = mean consumption. Given that the distribution  $x$  is divided into two population groups  $x_i$  and  $x_{ii}$ , their population sizes are stated as  $n_i$  and  $n_{ii}$ . The decomposition formula for the Theil's first and second measures according to Foster, Seth, Lokshin & Sajaia (2013) are given by equations 5 and 6:

$$T_1 = \underbrace{\frac{\bar{x}_i}{\bar{x}} \cdot T_{1i} + \frac{\bar{x}_{ii}}{\bar{x}} \cdot T_{1ii}}_{\text{within group Theil index}} + \underbrace{T_{1i}, T_{1ii}}_{\text{between group Theil index}} \quad (3)$$

within group Theil index      between group Theil index

$$T_2 = \underbrace{\frac{n_i}{n} \cdot T_{2i} + \frac{n_{ii}}{n} \cdot T_{2ii}}_{\text{within group Theil index}} + \underbrace{T_{1i}, T_{1ii}}_{\text{between group Theil index}} \quad (4)$$

within group Theil index      between group Theil index

These Theil measures combine perfect decomposability with a nice structure of weights. Each pair of the weights ( $\frac{\bar{x}_i}{\bar{x}}$  and  $\frac{\bar{x}_{ii}}{\bar{x}}$  or  $\frac{n_i}{n}$  and  $\frac{n_{ii}}{n}$ ) do sum up to one (Bellu and Liberati, n.d.). Theil's property of decomposability explained their wide use in empirical analyses; they are useful in understanding the within group and between group inequalities. In this case, the framework for consumption (welfare) inequality decomposition was Theil's first measure (equation 5)

Where:

$T_1$  = Theil index (Theil's first measure)

$\bar{x}$  = average consumption of all respondents,  $\bar{x}_i$  = average consumption of the first subgroup (e.g. mean consumption of non-remittance recipients farm households)

$\bar{x}_{ii}$  = average consumption of the second subgroup (e.g. mean consumption of international remittance recipients farm households)

Within group Theil index contribution from first subgroup:

$$T_{1i} = \frac{1}{n_i} \left\{ \sum \left( \frac{x_i}{\bar{x}} \cdot \ln \frac{x_i}{\bar{x}} \right) \right\} \quad (5)$$

Within group Theil index contribution from second subgroup

$$T_{1ii} = \frac{1}{n_{ii}} \left\{ \sum \left( \frac{x_{ii}}{\bar{x}} \cdot \ln \frac{x_{ii}}{\bar{x}} \right) \right\} \quad (6)$$

Between group Theil index contribution from first subgroup

$$T_{1ib} = \left( \frac{\bar{x}_i}{\bar{x}} \cdot \ln \frac{\bar{x}_i}{\bar{x}} \right) \quad (7)$$

Between group Theil index contribution from first subgroup

$$T_{1iib} = \left( \frac{\bar{x}_{ii}}{\bar{x}} \cdot \ln \frac{\bar{x}_{ii}}{\bar{x}} \right) \quad (8)$$

### 3. Results and discussions

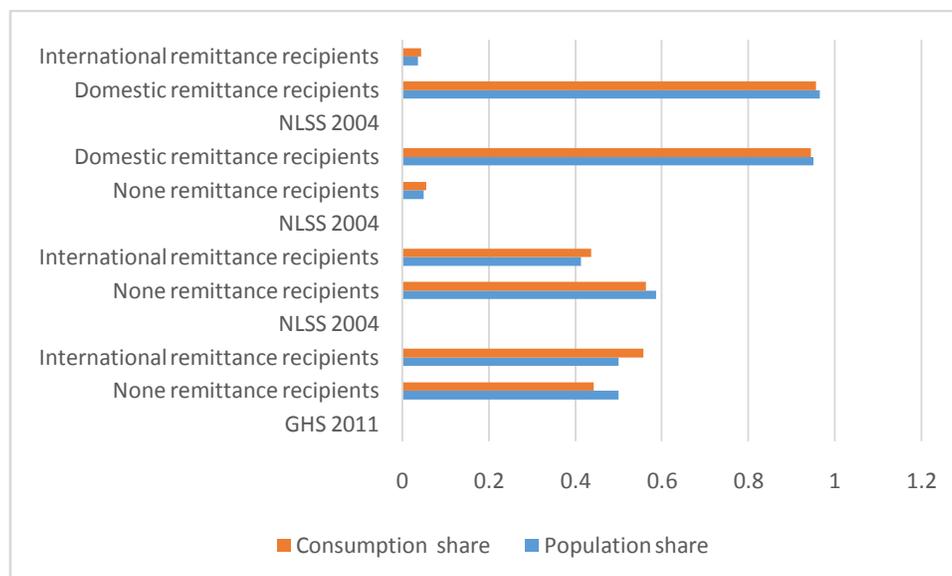
#### 3.1. Data description

Exactly 63% of the households had per capita consumption of less than 50,000 Naira in the one-year survey period. Only 13% of the households had per capita consumption of at least 50,000 Naira in the one-year survey period. A few, (24%) of the households did not report their consumption expenditure. Per capita income was less than 50,000 Naira in most (70%) of the households whereas only 22% of the households had per capita income of 50,000 Naira or more. Precisely 8% of the households did not report income. Sixty percent (60%) of households who reported their principal occupation in the sub-sample have agricultural activities as their main occupation making “farm households” the reference group of the study. Also, validating the nomenclature, “farm households” in this context is the fact that the agrarian sector is the domain of 61 % of the sub-sampled households.

#### 3.2. Effects of Remittances on consumption inequality

Figure 1 presents a basic view of consumption inequality by depicting each subgroup’s share of aggregate consumption. A household subgroup has its fair share of aggregate consumption if its consumption share is equal to its population share. Virtually, each of the households subgroup has about or a little above their fair share of consumption as each pair of bars (representing population share and consumption share) are almost equal. Clearly, this chart show that consumption is not significantly dispersedly distributed as there was only small differences between population share and consumption in each group.

Table 1 and Figure 2 give more in-depth inequality analyses by decomposing it to within and between subgroup elements. From GHS 2011, Thiel index is 0.02 this value is near zero demonstrating that the inequality is small or insignificant. Inequality decomposition from the GHS sample showed that International remittance recipients (IR) contribute 0.0608 to the within group inequality of 0.0067. The non-remittance recipients (NR) contribute a negative value of -0.0542 to the within group inequality of 0.0067. The inequality between the two subgroups (IR and NR) is 0.0133.



**Figure 1.** Discrepancies between population shares and consumption shares (Source: Authors computation from GHS (2011) and NLSS (2004) data)

Three different analyses were carried out from three groups of the NLSS sample (as in table 1). The first group comprising IR and NR subgroups present a Theil index of 0.0524. This index is decomposed into within group Theil index of 0.0201 (with IR contributing 0.0439 and NR contributing -0.0239) and the between subgroups (IR and NR) Theil index of 0.0323.

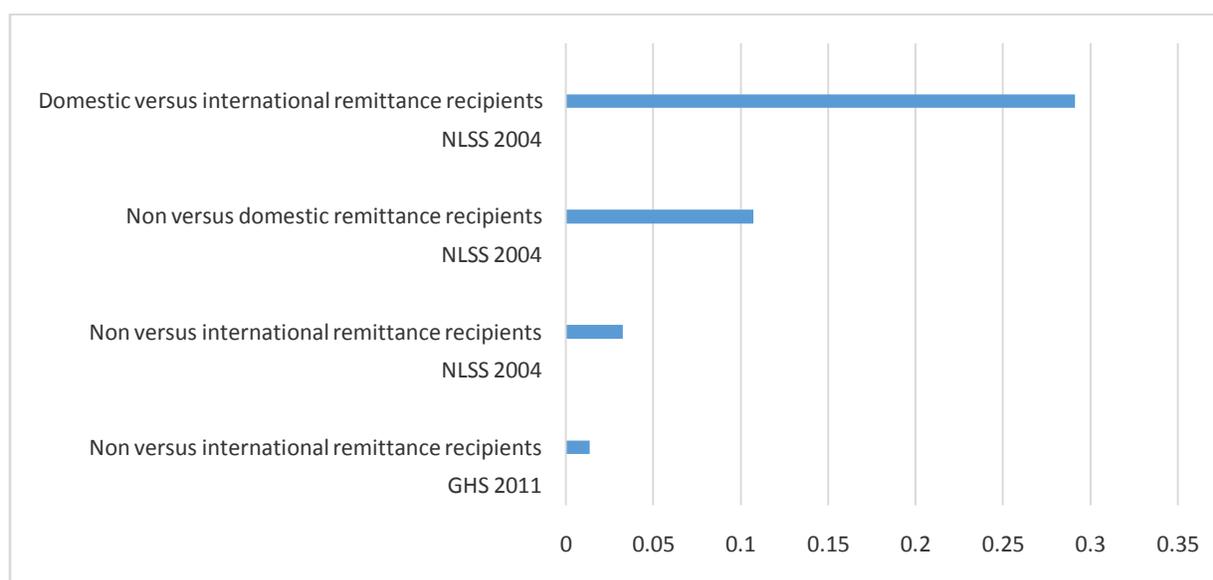
**Table 1.** Inequality decomposition of welfare among pairs of the farm households categories

Household categories	Population share	Income share	Contribution to within Theil index	Within Theil index	Between Theil index	Theil index
<b>GHS 2011</b>						
None remittance recipients	0.5000	0.4424	-0.0542	0.0067	0.0133	0.0200
International remittance recipients	0.5000	0.5576	0.0608			
<b>NLSS 2004</b>						
None remittance recipients	0.5873	0.5629	-0.0239	0.0201	0.0323	0.0524
International remittance recipients	0.4127	0.4371	0.0439			
<b>NLSS 2004</b>						
None remittance recipients	0.0491	0.0545	0.0055	0.0003	0.1073	0.1076
Domestic remittance recipients	0.9508	0.9455	-0.0053			
<b>NLSS 2004</b>						
Domestic remittance recipients	0.9649	0.9572	-0.0090	0.0016	0.2912	0.2928
International remittance recipients	0.0351	0.0428	0.0105			

Source: Authors analyses from GHS 2011 and NLSS 2004 Data

Similarly, the second group from the NLSS sample comprising of non-remittance recipients (NR) and domestic remittance recipients (DR) farm households the overall group theil index of 0.1076. This value is decomposed into within group Theil index of 0.0003 (NR and DR contributing 0.0055 and -0.0053 respectively). The between subgroups (NR and DR) element of the Theil index decomposition is 0.1073. This value showed that there was relatively more inequality, howbeit small, between NR and DR, than within the overall group consisting of both NR and DR in the study period.

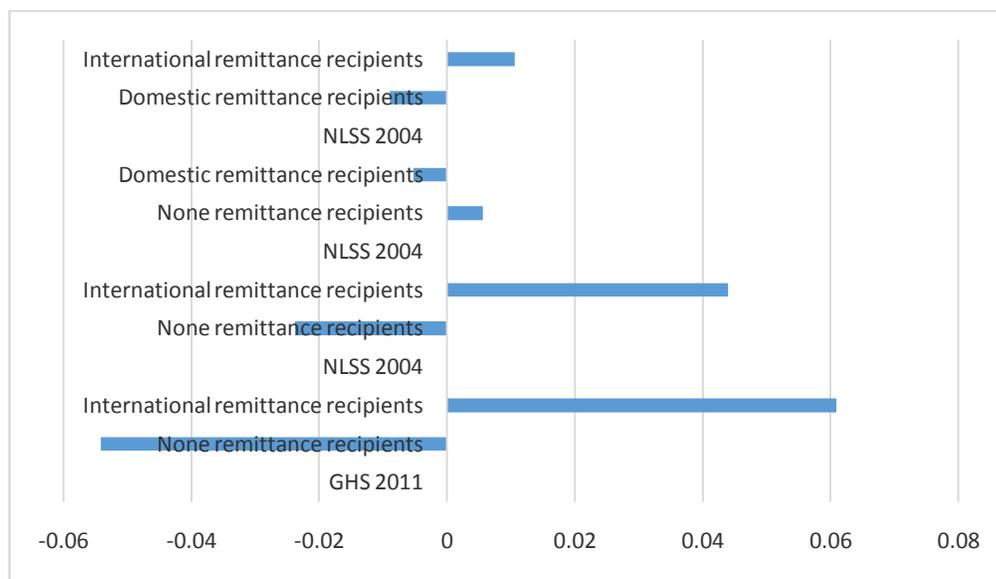
The third group drawn from the NLSS sample comprising IR and DR. This group has the highest Theil index with a value of 0.2928 demonstrating that inequality is greatest this group. However, this third group inequality is still considered small because it is less than 0.5. The inequality decomposition gave a within group inequality or Theil Index of 0.0016 showing that there is almost zero inequality within the group. But the between group Theil Index component of 0.2912 showed that inequality is more between the IR and DR than between other subgroups in the other earlier three groups (depicted in the figure5).



**Figure 2.** Between subgroups' Theil Indices Source: Authors computation from GHS (2011) and NLSS (2004) data

Theil indexes obtained from various remittance recipients group analysed were not significant ( $T < 0.5$ ), affirming that remittances (either of international or domestic sources) were not significant factors in welfare (consumption) disparity. Similarly, Mughal & Anwar (2012) found that the receipt of remittances had inverse relationship with consumption inequality in Pakistan. These results are in line with Krueger's & Perri's (2005) DCM and SIM models which theorised that an increase of income dispersion leads to a smaller increase in consumption dispersion. During the early stages of migration, inequality in a community increases. According to McKenzie & Rapport (2004), this inequality is reversed as migration opportunities become available to a wider section of the population. Nigeria has witnessed several decades of

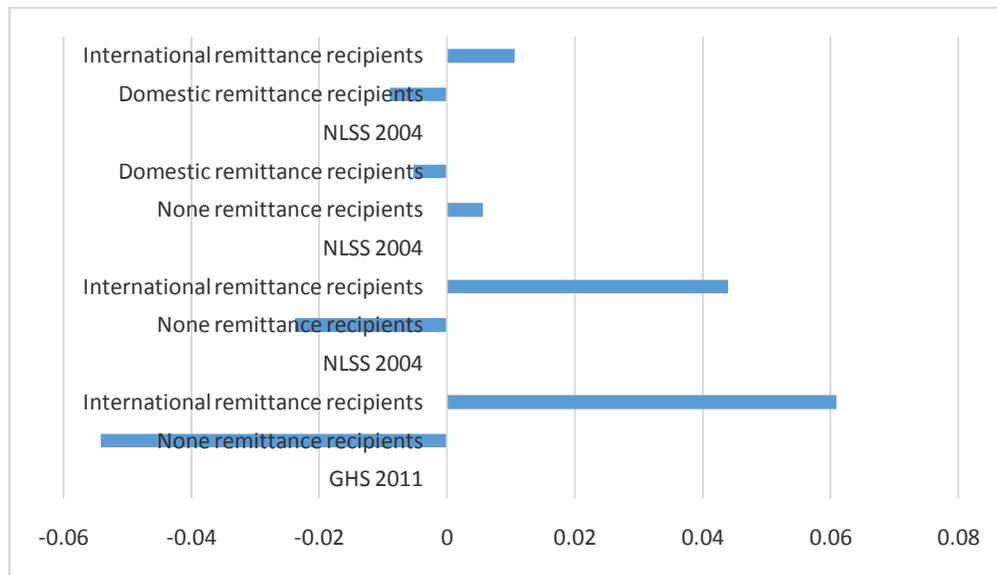
international migration, including massive migration from rural to urban areas; hence remittances are not necessarily linked with inequality of consumption or welfare disparity. Even, if due to limited risk diversification strategies available to the non-remittance recipients, income inequality were now positively linked with consumption inequality, it would still be difficult to link remittances with consumption inequality. A few previous studies portrayed that remittances have negative effects on income inequality. Babatunde (2008) found that remittances decreased income inequality in rural Nigeria. Elsewhere, Portes (2009) found that all else equal, remittances decrease inequality, the poor mostly felt the most of remittance effects. Remittances were negatively related to the income of the rich Portes (2009). Using a 2006 household survey in Mali, Gubert, Lassourd & Mesplé-Somps (2009) in Mughal & Anwar (2012), showed that remittances reduce income inequality by about 5 percent.



**Figure 2.** Between subgroups' Theil Indices - Source: Authors computation from GHS (2011) and NLSS (2004) data

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**Figure 3.** Households subgroups' contribution to Within Group Theil Indices - Source: Authors computation from GHS (2011) and NLSS (2004) Data

Although not significant, this study showed that international remittance recipients subgroup in each group contributed a greater share to the within group consumption inequalities (as shown in figure 3). Remittances contributed to consumption inequality, but at a significantly lower rate than it could have done to income inequality. The negative contributions of non-remittance recipients subgroups to the within group Theil index shows transfers of welfare (consumption) from the poor non-remittance recipients to the relatively non-poor international remittance recipients, howbeit at insignificant amounts.

#### 4. Conclusion and recommendations

Remittances, including those from abroad were not a significant factor in consumption (welfare) inequality, though they could have contributed to income disparity. Consequently, Nigerian national economic policies need to be directed at easing remittance flows and at enhancing its impacts. Policies need to increase financial infrastructure and services supporting remittances is necessary Also, existing policies on remittance

infrastructure ones should be strengthened. Such policies, if well implemented, will even-out remittances thereby quelling its potential effect on income and welfare disparity.

Improving access of all potential recipients and senders irrespective of status or location to banking facilities will not only quell income disparity through better remittances distribution, it will also further financial deepening in Nigeria. Commercial banks can leverage (or reinforce the existing linkages) on the services of microfinance and credit unions (because of their greater presence) for banking the unbanked households in the rural areas thereby fostering remittance delivery.

Activities of Money Transfer Organisations (MTOs) will have to be further regulated to reflect market competitiveness thereby eliminating the challenge of exclusive control of remittance transfers by only one organisation. Market competitiveness of MTOs will reduce the cost of remitting, improve service quality, reduce informality, increase financial access and spread the reach of remittances.

Equalization policies should be directed at strengthening private ownership of assets, including financial portfolios, insurance schemes and credit access by those who might not have access to remittances. Such policies will eventually diminish potential welfare disparity effects of massive remittance inflows into Nigeria as those who do not receive remittances can meet up with prevailing welfare level through access to other sources of funds.

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## References

- Adams, H.R. (1991), "The economic uses and impact of international remittances in rural Egypt", *Economic Development and Cultural Change*, Vol. 39 No. 4, pp. 695-722.
- Adams Jr., R.H. (1995), "Sources of income inequality in rural Pakistan", *Research Report 102*. International Food Policy Research Institute. Washington D.C.
- Babatunde, R.O. & Martinetti, E.C. (2010), "Impact of remittances on food security and nutrition in rural Nigeria" *Paper prepared in collaboration with visiting scholar at the Centre for International Cooperation and Development*, Department of Public Economics, University of Pavia, Italy.

- Babatunde, R.O. (2008), "Income inequality in rural Nigeria: Evidence from farming households' survey data", *Australian Journal of Basic and Applied Sciences*, Vol. 2 No. 1, pp. 134-140.
- Bellu, L.G. and Liberati, P. (n.d), "Policy impact on inequality: decomposition of income inequality by subgroups", EASYPol: FAO online resource material for policy making.
- DFID (2005), "Informal remittance systems in Africa, Caribbean and Pacific (ACP) Countries". Emerging Markets Group (EMG) Ltd. London. Retrieved from [www.emergingmarketsgroup.com](http://www.emergingmarketsgroup.com)
- Foster, J.; Seth, S.; Lokshin, M. & Sajaia, Z. (2013), *A unified approach to measuring poverty and inequality: theory and practice*. World Bank ADePT series
- International Fund for Agricultural Development (IFAD) (2007), "Worldwide remittance flows to developing and transition countries", *Sending Money Home*. Retrieved from [www.ruralpovertyportal.org](http://www.ruralpovertyportal.org)
- Krueger, D. & Perri, F. (2005), "Does Income Inequality Lead to Consumption Inequality? Evidence and Theory", Federal Reserve Bank of Minneapolis.
- Lindley, A. (2008), *African remittances and progress: Opportunities and challenges (ARI)*. International Cooperation & Development. *ARI 52/2008 - 27/05/2008*
- Martin, M. (2005), "Africa's external constraints: What developed countries should do", *Africa in the World Economy - The National, Regional and International Challenges*. *The Hague, Fondad. December 2005*, Retrieved from [www.fondad.org](http://www.fondad.org)
- McKenzie, D. and Rapport, H. (2004), "Network effects and the dynamics of migration and inequality: Theory and evidence from Mexico", *BREAD Working Paper 63*, Harvard University.
- Mughal, M. & Anwar, A.I. (2012), "Remittances, inequality and poverty in Pakistan: macro and microeconomic evidence", *CATT Working Paper 2*.
- Nigerian Bureau of Statistics (2011), *General Household Survey-Panel, 2010/2011*.
- Nigerian Bureau of Statistics (2005), *Nigerian Living Standard Survey, September, 2003 to August, 2004*.
- Olowa, O.W. & Olowa, O.A. (2008), "Remittances, inequality and poverty: Evidence from rural south western Nigeria" *Journal of Social and Policy Issues. International Research and Development Issues*, Uyo. 5(3), 92-99
- Orozco, M. & Millis, B. (2007), "Remittances, competition and fair financial access opportunities in Nigeria", A publication United States Agency for International Development. USA.
- Osili, U.O. (2007), "Understanding migrants' remittances: Evidence from the U.S.-Nigeria migration survey" Department of Economics, Indiana University Purdue University Indianapolis.
- Portes, L.S.V. (2009), "Remittances, poverty and inequality" *Journal of Economic Development*. 34: 127-140.
- Siddiqi, M. (2008), "The global remittances boom" *African Business*. Tuesday, January 1, 2008
- Thao, N.G. (2009), *Migration, remittances, and economic development: Case of Vietnam* Central Institute for Economic Management (CIEM) Ministry of Planning and Investment. TX: Harcourt Brace.

World Bank (2008), "Migration and development brief 3: Remittance trends 2007", *Prospects: Migration and Remittance Data*. The World Bank Group.

Yang, D. & Martinez C.A. (2005), "Remittances and poverty in migrants' home areas: Evidence from the Philippines", in Ozden, C. and Schiff, M. (Ed). *International Migration, Remittances, and the Brain Drain*. World Bank.