Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.4, No.20, 2013

Determinants of Remittance: Panel Evidence From Selected Countries In Africa

Denis N. YUNI*[1], Ambrose N. OMEJE[2] and Henry T. ASOGWA[3]
Department of Economics, University of Nigeria, Nsukka
*Email: yuni.denis@unn.edu.ng. Tel: +2347063985716.

Abstract
The African continent has over 30 million people in the Diaspora and sends over 50 billion US Dollars to their families and communities back home ahead of FDI and ODA. It is on this premise that this study carries out an investigation on the determinants of Remittance across 21 African countries with neat selection from all the regions. The study uses the GMM estimation in a dynamic panel to find out that Remittance receipt of the previous year, broad money growth, taxes, inflation, lending rate and age dependency ratio are significant determinants of remittance, while GDP per capita and real effective exchange rate are not. However, while broad money growth, tax revenue, GDP per capita, and real effective exchange rate are inversely related to Remittance receipt, lending rate, age dependency ratio and inflation are positively related.
Keywords: Determinants, Remittance, Africa, Dynamic panel.

1. Introduction

The concept of brain drain has over the years turned out to brain gain in the form of remittance to migrant countries. The initiative and impact of remittance have continuously increased, and have become a major source of financing in many developing countries. In 2010 Remittance stood at about $350 billion from people who hail from developing countries thereby, far exceeding Official development assistant of about $130billion. This is replicated in Africa where the African Diaspora remitted about $51 billion as against £43 billion of the official development assistance (Doyle, 2013).

Lives of so many people around the world have been affected by remittances. Remittances constitute a large source of foreign transfers to the developing world and are stronger than the Foreign aid and private capital transfers. Thus, international organizations or home and host country governments consider remittance flows as an engine of development. However, the flows of remittances (that is, money sent home from abroad) from the 191 million migrant workers worldwide to their homes have now reached over $200 billion, although, at least 50 per cent of remittances are sent through informal channels, which are not recorded, bringing the total remittances sent to somewhere around $300 billion (World Bank, 2006), the flows of these remittances now exceed Official Development Aid (ODA) as well as Foreign Direct Investment (FDI) (World Bank, 2006). In some countries, remittances are a very important source of finance thereby, making up to about 5 to 40 per cent of the country's GDP anywhere. In some of these countries too, they are highly dependent on remittances as a source of alleviating poverty hence, contributing to their economic growth and development.

Consequently, international migration flows are a very sensitive subject in the public opinion since it is the main source through which remittances come from. Moreover, migration plays a very decisive role in the insertion process of the less developed countries in globalisation (El Mouhoub et al, 2008). In fact, international migration flows, economic globalisation and regionalisation processes are, at least in the short or middle run, complements rather than substitutes (Alba et al., 1998). Therefore, migrant workers remittances constitute the second biggest source of foreign transfers to the developing world with Foreign Direct Investment (FDI) and are more important than the public aid, official development aid (ODA) and private capital transfers. It is on this premise that international organisations (IMF, World Bank, etc.) as well as home and host country governments consider remittance flows as an engine of development.

Furthermore, migrant remittances to countries of birth are seen as one of the most visible developmental effects of migration. There is evidence that they alleviate poverty at the household level in some countries by helping to fund schooling, reducing child labour, increasing family health and expanding durable goods ownership. Remittances can form a 'family welfare system' that can help smooth consumption, alleviate liquidity constraints and provide a form of mutual assistance (Orozco and Bryanna, 2007). Consequently they particularly affect women, men, children, dependent youths, and aged parents as major recipients of remittances and traditional homemakers since they use remittances received to augment domestically-earned income.

Historically, the African continent has registered sluggish and volatile per capita GDP growth and high domestic unemployment, combined with a rising domestic population and a willingness to work in any location under a wide variety of conditions even far away from their families. These situations have made many Africans of the working age group to view overseas contractual work as a viable and often necessary option for the livelihood of his, family, relatives, and friends. Irrespective of this, there have been in existence, tacit government acknowledgement that insufficient domestic opportunities exist in their home countries and this has led to strong bureaucratic support and commitments to finding opportunities for deploying overseas African workers. The ensuing flow of remittances from the millions of Africans working abroad have been enormous and have contributed much in the continent's gross domestic product in recent years. These remittances to African continent have been an invaluable support to the retail businesses, education, medical industries, as well as to small and medium business investments. Consequently, the advantages of remittances to African continent cannot be overemphasized.

2. Global Evidence

Due to the increasing effects and relevance of remittance to Nigeria, there has been increasing research in this sector. Some cross country studies that investigated the determinants of remittances include; Vargas-Silva and Huang (2005) who examined the determinants of worker's remittances. They used Variance decompositions, impulse response functions and Granger causality tests derived from a vector error correction model to test if remittances are affected by the macroeconomic conditions of the host (remittance sending) or home (remittance receiving) country. The results indicate that remittances respond more to changes in the macroeconomic conditions of the host country, than to changes in the macroeconomic conditions of the home country. On the other hand, Schiopu and Siegfried (2006) investigated the determinants of remittance mainly focusing on altruism and investment motives. They used a panel of 21 countries in their analysis and found that altruism positively and significantly attract remittance while investment was shown to have a weak motivation for remittance. Also, Coulibaly (2009) used a panel vector autoregressive (VAR) model to investigate the macroeconomic determinants of migrant remittance cycles. The study employed panel data from 16 countries to show that remittances respond positively to booms in the host country, altruistic motives and self-interested inflows.

Abdel-Mahmoud and Abdel-Rahman (2006) investigated foreign worker remittances in the Kingdom of Saudi Arabia (KSA). The variables used in the study as determinants include the real GDP income variables, wages per worker, returns and parity conditions, plus some composite indices pertaining to socio-economic factors and to risk indicators in the Kingdom. Results obtained generally point to a number of facts. The per capita GDP activity variable has a positive relationship to levels of per worker remittances showing that remittances from the Kingdom are pro-cyclical increasing during booms and declining during recessions. Wages also turn out to be a significant positive determinant of remittances per worker from the Kingdom. The Differential return variables have the expected inverse relationship with the dependent variable, while results relating to the various political, economic and financial risks' variables indicate that the variables measuring the degree of government stability and the degree of law and order have a significant impact on remittances. Köksal (2006) unlike several other studies found that the determinants of remittances were the dynamics of family ties (which include their social ties, wellbeing and risk sharing) and the macroeconomic stability.

Ajayiet el (2009) examined the impact of international remittances on well-being in sub-Saharan Africa, using a set of cross-country data drawn from 38 countries and a multiple regression analysis. The result obtained from the analysis indicates that international remittances have to some extent contributed to the improvement of well-being in sub-Saharan Africa. However, for international remittances to continue to be relevant to the well-being of the people of sub-Saharan Africa, measures such as sound macroeconomic policy, flexible financial sector infrastructure and low transaction cost of fund transfers, conducive investment climate with stable political environment, adequate checks on the incidence of money laundering, greater transparency in the transfer of fund between the sender, the disbursing agent and the receiver, adequate protection of the customers, financial security and risk management practices as suggested. The study was of interest because of the panel selection analysis which described to a great extent the observation from 38 countries.

El Mouhoub et al. (2008) examined the macroeconomic determinants of migrants' remittances in the Southern and Eastern Mediterranean Countries employing data from Turkey, Algeria, Morocco, Tunisia, and Egypt. They applied an econometric analysis of the macroeconomic determinants of migrant remittances using an error correction model for five SEMCs. The results of the study mainly show that remitting decision within family contracts (insurance motivation) dominates remitting decision with purely altruistic motivations. For the migrants originating from Maghrebian region, investment in housing for their retirement or for holidays is an important motivation to remit contrary to Egyptian migrants who work generally under temporary contracts. However, Adams (2008) analysed how the skill (educational) level of migrants from different developing countries affects the flow of international remittances to these countries. Adams used 76 low- and middle-income developing countries to examine the demographic, economic and financial determinants of international remittance. The findings from the study suggest that, the level of per Capita remittances received by a country is positively related to investment returns at home. In all versions of the remittance model presented here, all of the coefficients measuring real interest rates at home are positively and significantly related to the level of per capita remittances received by a country.

Empirical studies on ascertaining the determinants of remittance from country specific studies also abound. Some of them include Lin (2010), who investigated the determinants of Remittances in Tonga. And the results indicate that macroeconomic conditions in remitting countries and exchange rate fluctuations influence remittances. In particular, remittances growth falls when the Tongan currency appreciates, but increases with higher real GDP growth and lower unemployment in remitting countries. The analysis also finds that the influence of these determinants varies with the recipients of remittances, with remittances to non-profit organizations being more sensitive to an appreciation of the Tongan currency and the interest rate differential between Tonga and remitting countries than remittances to households. However, the analysis does not find evidence of Dutch Disease in Tonga, as the real exchange rate does not appear to be affected by remittances. And the evidence appears to be different with what of El-Mouhoubet al. (2008).

Sinning et al. (2007) investigated the determinants of migrants' financial transfers to their home country using German data. A double-hurdle model was applied to examine the effect of relevant determinants on the propensity to send transfers abroad and the amount of transfers. The findings suggest that return intentions positively affected financial transfers of immigrants to their home country. Moreover, while the effect of the household size on migrants' transfers abroad turns out to be significantly negative, remittances are higher if close relatives live in the sending country. Finally, likelihood-ratio tests indicate that the double-hurdle model is the correct specification for the analysis of migrants' savings and remittances rather than the conventional Tobit model usually applied in the literature. Two years later, Reside (2009) tend to argue from another dimension, according to his study which tried to examine the determinants of Overseas Filipino Worker (OFW) Remittances. The findings show that remittance growth responds to real growth in the Philippines and in host countries, exchange rates, interest and deployment rates, inflation, as well as to immigration and employment policies. While most studies conclude that remittances are exclusively either driven by altruistic or self-interested motives, the evidence in this study supports remittances driven by both. Thus, remittances can be either countercyclical or procyclical depending on the shocks affecting them. Nominal price and exchange rate shocks give rise to the former response, while real shocks lead to the latter response. Interestingly, the study tends to agree with evidence from Huida, H. L. (2010).

In Nigeria, Olowa et al. (2012) used a Multinomial Logit model to investigate the determinants of remittance receipts in rural Nigeria. The study showed that households with more educated members at the secondary level, age of the household head, number of males over age 15, zone and land size are positive and significantly related to internal remittance, while households with more educated members at the university level, age of household head, and land size insignificantly affect international remittance. However, Ojapinwa (2012) investigated the determinants of remittances in Nigeria using regression analysis and the findings suggest that the main empirical determinants of migrant remittances were real GDP, labour market situation and population growth.

Worthy of note here is that many studies have investigated the determinants of remittances from a cross country and country specific perspective. The studies of cross country studies include the works done by: Vargas-Silva and Huang (2005), Schiopu and Siegfried (2006), Abdel-Mahmoud and Abdel-Rahman (2006), Köksal (2006), Ajayiet el (2009), El Mouhoub et al. (2008), and Adams (2008). These works have been done for a panel of countries that were taken in different countries of the Globe. Ajayi et al (2009) was based on sub-saharan countries, while Adams (2008) used 76 low and middle countries which are obviously beyond Africa. Meanwhile, country specific studies like; Lin (2010), Sinning et al. (2007), Reside (2009), Olowa et al. (2012) and Ojapinwa (2012) looked at the determinants from different perspectives and with varying focus on the subject. This study therefore employs 21 countries that are carefully selected to project a fair representation of the African continent.

3. Data and Methodology

The data used is gotten from the World Bank indicators, IMF data bank and different country data banks. The data covers a panel of 21 countries with a time frame from 1980 to 2011 that provides a very large degree of freedom. The data is therefore employed to investigate the determinants of remittance with a fixed effect panel specification to control for unobserved characteristics of remitting countries. This is in line with existing literature on the determinants of remittance. The system Generalized Methods of Moment (GMM) in a dynamic panel is therefore employed to ascertain these determinants as can be seen in the equation given below:

$$Rem_{i,t} = \alpha + \beta_1 Rem_{i,t-1} + \beta_2 REEX_{i,t} + \beta_3 GDPG_{i,t} + \beta_4 agedep_{i,t} + \beta_5 int_{i,t} + \beta_6 M2_{i,t} + \beta_7 taxrev + \beta_8 inf + \mu$$

Wherein Rem is remittance received (% GDP), $Rem_{i,t-1}$ is the lag of remittance received (% GDP), REEX stands for real exchange rate, GDPC for GDP per capita growth rate, agedep is the age dependency ratio, int is the lending interest rate, M2 is the broad money base, taxrev is the tax revenue, while inf stands for inflation. Then, i and t represents the panel notation for which i is for the cross sectional identities (i=1,2,…,21) while t is for time (t = 1,2,…,30).

4. Empirical Results

This section is dedicated to the result and discussions of the aforementioned equation. The results are to a large extent in line with a priori expectation as presented in table 1 below;

Table 1: GMM Estimates for the Determinants of Remittance Receipt (%GDP)

Remittance Receipt (% GDP)	Coef/p-value
Lag of remittance receipt	0.481***
	(0.0000)
Broad Money Growth	-0.095**
	(0.009)
Tax Revenue	-0.667***
	(0.000)
Inflation	0.126***
	(0.000)
Lending Rate	0.349*
	(0.012)
GDP Per capita	-0.009
	(0.415)
Real Effective Exchange Rate	-0.086
	(0.510)
Age Dependency Ratio	0.094**
	(0.003)
Constant	17.87
	(0.182)
Wald Chi^2	232.03
Chi^2 probab	0.0000
p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001	

Source: STATA 13 Output

The chi square probability of 0.0000 signifies a significant representative of the model at 1% significant level. The result suggests that the lag of remittance receipt is a positive significant determinant of remittance receipt. This implies that remittance receipt depends on the previous year's receipt to a large extent. Broad money growth is equally significant at 5% significant level and is inversely related to remittance receipt. This is expected given that the higher the money in circulation translates to a relatively better state of affairs in the economy. Hence the want for external support in the form of remittance might no longer be necessary. On the other hand, tax revenue is a significant determinant of remittance at 1% significant level. However it is negatively or inversely related to remittance receipt. This could be as a result of the fact that higher tax rates might scare migrants from remitting if their remit will be taxed. This might therefore tend to reduce official remittance flows and hence remittance receipt. However, it could be expected to have a negative impact as well since high tax translates to low disposable income and hence the need for more remittance.

Also, inflation explains remittance significantly at 1%, and its positive relationship suggest that high prices only make things more difficult hence increasing the need for higher remittance; Resulting in increasing remittance with increase in inflation. Lending rate is equally positively significant, though at 10% it has a positively direct relationship with remittance receipt. This implies that as lending rate increases, demand for loans drop with the desire to source for alternative funding. Apparently remittance is one of those significant alternative sources to loans in the advent of high lending rate in Africa. Remittance decreases with a unit increase in GDP per capita though not significantly. The result suggest that remittance receipt drops with an increase in the gross domestic product the person, and shows that as people get better off remittance receipt tend to drop, though not significantly as the statistics of remittance has been on a generally steady increase for over 3 decades.

Real exchange rate has a negative non-significant impact on remittance receipt in Africa. This supports the already existing literature that opines that a remittance is the strongest external flow that is not significantly influence by shocks. It is more reliable and stable than other external flows like foreign direct investment and official development assistant. The inverse relationship implies that remittance decreases with increase in real exchange rate. Age dependency ratio which has not been considered by previous empirical works, significantly explains remittance receipt at 5% significant level. The positive relationship confirms the hypothesis that remittance increases with increase in dependency ratio. This is evident as most migrants are of the working age group who go out to search for greener pastures for their younger siblings and older parents. This goes without saying that the adult population who are left back home and are gainfully employed would need remittance relatively lesser than the dependent age group.

5. Conclusion and Policy Recommendation

The relevance and significance of remittance cannot be over emphasized. Most developing countries have gotten great incentives from the growing remittance receipts of these nations. It is therefore important that empirical works as such be done to further investigate the determinants of remittance receipt in an effort to boost it as an additional external source of financing which is so badly needed in Africa. The findings of this study suggest that Remittance receipt of the previous year, broad money growth, taxes, inflation, lending rate and age dependency ratio are significant determinants of remittance, GDP per capita and real effective exchange rate are not. It is therefore the place of the African governments to put more efforts on the reduction of inflation and taxes in order to attract more remittance receipt as they both discourage remittance. On the other hand; high dependency ratio and a high lending rate significantly attract remittance. It is not economically logical to increase them further in order to attract remittance, but it is important that we note that remittance is redeems this situations of high dependency ratio and high lending rate and should therefore muscle up more policies that increases remittance. Especially given that it flows more with higher dependency implying increasing per capita income, reducing inequality and hence dragging out some people from beneath the poverty line.

References

Abdel-Mahmoud M. and Abdel-Rahman (2006).TheDeterminants of Foreign WorkerRemittances in the Kingdom of Saudi Arabia.*J. King Saud Univ.,* 18 (2): 93-121.

Adams H. R., (2008).The Demographic, Economic and Financial Determinants of International Remittances in Developing Countries.*Policy Research Working Paper,*4583.

Alba F., Garson J. P. and Mouhoud E. M. (1998). Migration policy in a free Trade Area: The issue of convergence with the economic integration process. OECD Migration, free trade and Regional Integration in North America, Paris.

Ajayi A. M., IjaiyaM. A., IjaiyaG. T., BelloR. A., IjaiyaM. A. and AdeyemiS. L. (2009). International remittances and well-being in Sub-Saharan Africa.*Journal of Economics and International Finance* 1(3): 078-084.

CoulibalyD. (2009). Macroeconomic Determinants of Migrants' Remittances: New Evidence from a panel VAR. *Centre d'Economie de la Sorbonne working paper, 07.*

Doyle M. (2013). African's remittances outweigh Western aid. Retrieved on the 26-06-2013, URL: http://www.bbc.co.uk/news/world-africa-22169474.

El Mouhoub M., Oudinet J., and Unan E. (2008).Macroeconomic Determinants of Migrants' Remittances in the Southern and Eastern Mediterranean Countries, CEPN Workingpaper, presented at 6th International Conference of the MEEA, Dubai 14-16 March 2007, With the support of the INEQ (Inequality: mechanisms, effects, policies), EU FP6 projectwww.criss-ineq.org.

Lin H. H. (2011). 'Determinants of Remittances: Evidence from Tonga' IMF Working Paper 2010.http://www.imf.org/external/pubs/ft/wp/2011/wp1118.pdf.

Köksal N. E. (2006). Determinants and Impact on the Turkish Economy of Remittances.Université Paris I Panthéon – Sorbonne. URL:http://www1.luc.edu/orgs/meea/ volume8/PDFS/koksal.pdf.Olowa O. W. and Awoyemi T. T. (2012).Determinants of Migration and Remittances in rural Nigeria.*Journal of Development and Agricultural Economics,* 4(7): 191-198. DOI: 10.5897/jdae11.053

Orozco M. and Bryanna M., (2007).Remittances, competition and fair financial access opportunities in Nigeria. A report submitted to the United States Agency for International Development (USAID), Abuja: Nigeria

Reside E. R. (2009). Determinants of Overseas Filipino Worker (OFW) Remittances.UP school of Economics

Discussion Paper, 11.http://www.econ.upd.edu.ph/2009dp/DP2009-11.pdf.

Schiopu L. and Siegfried N. (2006). Determinants of Workers' remittances: Evidence from the European Rgion. *European Central bank working paper series*, 688.

Sinning M., Essen R., and Bonn I. (2007) Determinants of Savings and Remittances. Empirical Evidence from Immigrants to Germany, Retrieved from http://www.iza.org/conference_files/worldb2007/sinning_m2106.pdf.

Vargas-Silva C. and Huang P. (2006) Macroeconomic Determinants of Workers'Remittances: Host vs. Home Country's Economic Conditions. *Journal of International Trade and Economic Development* 15(1):81-99.

World Bank (2006). Migration and Remittance Fact book, The World Bank: Washington, DC.

<u>Countries considered include</u>

Central Africa

1.Cameroon
2.Central Africa Republic
3.Gabon
4.Equatorial Guinea

East Africa

5.Ethiopia
6.Kenya
7.Sudan
8.Uganda

North Africa

9.Egypt
10.Lybia
11.Morocco

South Africa

12.Botswana
13.Lesotho
14.Malawi
15.Zambia
16.South Africa

West Africa

17.Cote d'Ivoire
18.Gambia
19.Nigeria
20.Senegal
21.Sierra Leone