Long-run macroeconomic impact of international migrant remittances on human development in low-income countries: A panel analysis of sub-Saharan Africa

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Abstract

In order to provide an empirical insight into the role of international migrant remittance inflows in low-income countries, this paper examines at the macro level, the long-run impact of international migrant remittance inflows on overall human development in Sub-Saharan Africa which has been well-known as a perennial net exporter of labour to the industrialized world since the colonial era. The fixed-effects balanced annual panel data estimation procedure for the period, 1987 to 2007, on 18 Sub-Saharan African countries was used for the empirical analysis. The paper finds that, contrary to the apprehension of the remittance-pessimistic developmental school, international migrant remittance inflows have a significant positive long-run impact on overall human development in low-income Sub-Saharan African countries. This evidence suggests that the essential role of international migrant remittance inflows on the socioeconomic development of Sub-Saharan Africa should not be undervalued in formulating any contemporary economic development strategy for the sub-region. It is, therefore, recommended that governments of the sub-region should pursue remittance-attracting policy as one of the macroeconomic policies to stimulate human development in the long run.

Keywords: International Migrant Remittances, Human Development, Fixed-Effects Panel Data Analysis, Sub-Saharan Africa
JEL Classification: C23 F22 F24 J61 O15

1.0 INTRODUCTION

Despite the high level of technological advancement in the modern world, human capital is still considered as one of the most expensive and essential productive resources. In terms of quantity, developing countries including SSA are among the richest with high fertility and population growth rates. With the exception of countries with large land space like the United States of America, Russia, Australia, Canada, and China, developing countries dominate the world's population not only in terms of size, but also in terms of growth and density. Thus, generally, high population growth and density tend to correlate positively with underdevelopment. This situation makes these developing countries, which lack the requisite non-human resources to stimulate rapid and

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sustainable development, to be producing far below their full potential, culminating in high rates of unemployment and underemployment with low wages. As a result of this, many young professionals as well as energetic unskilled labour have developed an irresistible desire for travelling abroad to seek greener pastures. In this era of globalisation when economies are getting more and more integrated with many more international trade barriers being collapsed, resource mobility across countries has become even more pronounced.

It is now established that brain gain in the form of inward remittances is directly associated with international migration in a net labour-exporting country. It is for this reason that developing countries as a whole have consistently been the largest recipient of international migrant remittances in the world. Today, official migrant remittance flows to developing countries are twice as large as official aid and nearly two-thirds of foreign direct investment (FDI). For instance, between 1995 and 2005, the gross official migrant remittance flows to developing countries has more than tripled. Even with this fast growing trend in official migrant remittance flows, it is widely believed that the actual total amount of migrant remittances received by developing countries is much higher, and probably about twice the officially reported amount since a significant proportion of these transfers is likely to be sent through the informal channels. Remittances are, therefore, an important source of finance and foreign exchange for many households in developing countries. In fact, as observed by Gammeltoft (2002), in recent years a number of developing countries rely much more on remittances than on official aid. It is, therefore, not surprising that in recent years remittances have attracted a lot of attention in empirical studies with higher concentration on their determinants and developmental impact on developing countries.

The problem is that the increasing trend in migrant remittance inflows to developing countries is in itself a motivational factor for the ever-increasing desire of the productively-active population of developing countries to travel abroad rather than stay at home in search of relatively more rewarding jobs. At the household level, the impact of remittances on socioeconomic development is quite clear and direct – pushing households above the severe poverty line and serving as an insurance against adverse income shocks. At the macro level, it is difficult to pinpoint the motives behind migrant remittance inflows as well as the use to which these remittances are put. Whilst some scholars argue that remittances are largely spent on consumer goods, financing education and skills training, healthcare, funerals, and acquiring accommodation, others are of the opinion that remittances are mostly spent on financing income-generating activities and investment projects. To whatever use migrant remittances are put, it is expected to ultimately reflect in the socioeconomic progress and overall development of the human society.

Even though at micro, meso, and macro levels, many studies have been done to explore the implications of remittance inflows for poverty reduction, income inequality, economic growth and development, on both specific-country and cross-country basis, none of these studies analysed the impact of remittances on overall human development. The purpose of this study, therefore, is to examine the extent to which international migrant remittance inflows promote overall human development proxied by the Human Development Index (HDI) computed by the united Nations Development Programme (UNDP). The paper focuses on 18 SSA low-income countries using balanced panel data from 1987 to 2007.

The next section of the paper discusses the trends in international migrant remittances and other capital flows to developing countries. In Section 3, literature review and the theoretical

framework are presented, while issues relating to data, specification of the empirical model and methodological issues are discussed in Section 4. The empirical results are presented and analysed in Section 5. Section 6 finalises the study with policy options and concluding remarks.

2.0 TRENDS IN EXTERNAL CAPITAL FLOWS TO DEVELOPING COUNTRIES

Since 1980, the trends in official and private capital flows to developing countries have been increasing quite consistently. The increasing trends in the inflows of migrant remittances and portfolio assets have far exceeded the growth in Official Development Assistance (ODA). This is an indication that it would be prudent for policymakers in developing countries to seriously consider restructuring their economies towards financing development programmes and projects from domestic and non-aid dependent external sources. In Table 1 below, a summary of the official flows of migrant remittances, portfolio assets and ODA to developing countries is presented.

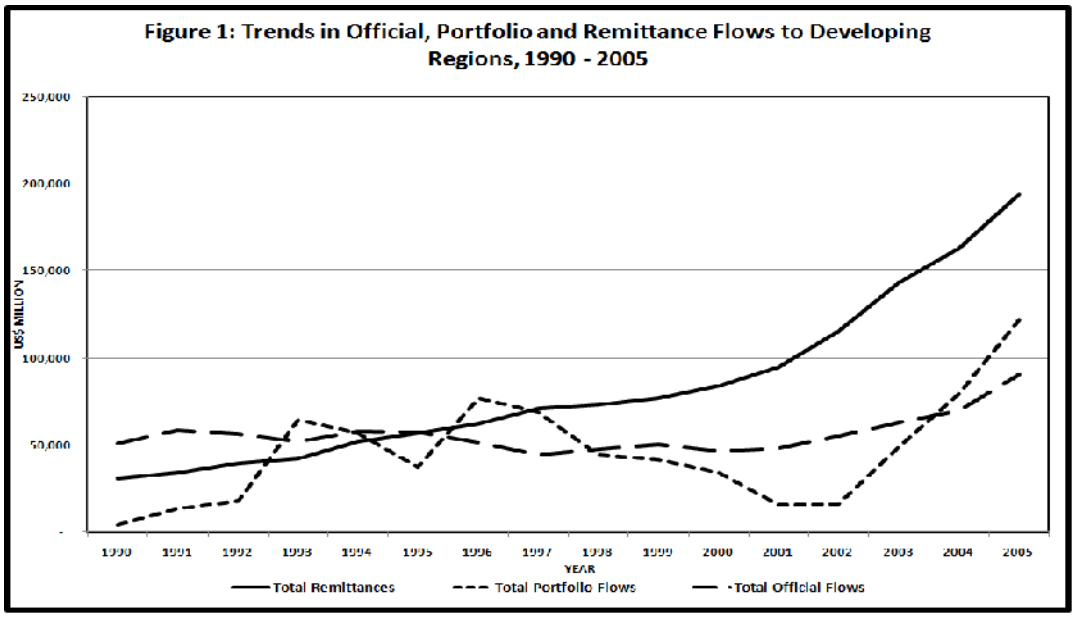
Table 1: Foreign Capital Flows to Developing Countries (in US$ million), 1980 - 2005

VARIABLE / YEAR		1980	1985	1990	1995	2000	2005
Migrant Remittances	**Developing Countries**	**18,384**	**19,565**	**31,058**	**57,302**	**84,186**	**194,174**
	Latin America-Caribbean	1,915	2,603	5,722	13,335	19,987	48,716
	Sub-Saharan Africa	1,396	1,173	1,862	3,193	4,623	9,969
Portfolio Assets	**Developing Countries**	**1,205**	**3,585**	**4,474**	**37,194**	**34,339**	**121,792**
	Latin America-Caribbean	812	-795	2,565	16,578	7,810	28,991
	Sub-Saharan Africa	32	-184	362	3,805	5,154	7,784
Official Development Assistance (ODA)	**Developing Countries**	**26,626**	**25,793**	**50,703**	**57,093**	**46,555**	**90,363**
	Latin America-Caribbean	2,141	3,342	5,111	6,267	4,841	6,309
	Sub-Saharan Africa	7,623	9,226	17,839	18,716	13,194	32,620

***Source**: Author's compilation from World Bank sources*

Table 1 shows that from 1995, migrant remittance flows to developing countries have overtaken ODA and became the leading source of foreign capital inflows. In SSA, although migrant remittance inflows have enjoyed higher average growth than ODA during the past decade, they do not amount to even a third of ODA in terms of absolute mean value. Among the official capital flows to SSA, portfolio assets are the least in terms of volume. On the whole, remittance flows to developing countries have been increasing steadily since 1990. For example, from a mere US$31.1 billion in 1990, migrant remittance flows to developing countries increased by more than 300 percent to US$96.5 billion in the year 2001. By the end of 2005, migrant remittance flows to developing countries had increased further to US$194.2 billion.

From Figure 1, since 1998, migrant remittance inflows have become the dominant external capital to developing countries; and have exceeded the combined volume of portfolio and ODA inflows by end of the year 2005.



***Source**: Author's own estimation based on data in Table 1 above*

3.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

3.1 An Overview of International Migrant Remittances and Socioeconomic Development

As far as the developmental impact of remittances is concerned, there are two main schools of thought, which are directly linked to the *Balanced Growth Theory* of the neoclassical inclination and the *Asymmetric Development Theory* of the Neo-Marxist/Structuralist thinking. The popular alternative names for these schools of thought are the Developmental Optimistic School inspired by the neoclassical migration hypothesis and the Developmental Pessimistic School of the structuralist dependency inclination.

3.1.1 The Developmental Optimistic Neoclassical Theory

The general developmentalist views on migration which are all affiliated to the functionalist paradigm in social theory, predict the counterflows of capital, including remittances and knowledge from migration, to increase investment and subsequently stimulate development and modernization of an economy. In particular, remittance-developmental optimists argue that international migration leads to a North-South transfer of investment capital and accelerates the exposure of labour-exporting communities to liberal, rational and democratic ideas, modern knowledge and education. In this regard, the increasing inflow of international remittances would, in the long-run, contribute positively to stimulating capital-constrained economies to effectively take-off in a sustainable fashion (Beijer, 1970).

At the macro level, remittances were considered a vital source of hard currency. At the meso and micro level, migration was supposed to lead to the economic improvement of migrants and greater freedom from local socioeconomic barriers and constraints. In the words of (Keely and Tran, 1989), migrant remittances are unique because only they have the capacity to "improve income

distribution and quality of life beyond what other available development approaches could deliver".

3.1.2 Developmental Pessimistic Structuralist Theory

The remittance-developmental pessimists such as Almeida (1973), Lipton (1980), Rubenstein (1992), and Binford (2003) argue that the net effect of migration and remittances is only to sustain or even reinforce the problems of underdevelopment rather than promoting development. The position of this school is that migration provokes the withdrawal of human capital which then leads to the development of passive, non-productive and remittance-dependent societies in developing countries. Besides the brain drain syndrome, the massive departure of active segment of the population causes a critical shortage of labour, depriving poor communities/countries of their most valuable workforce (Lipton, 1980; Rubenstein, 1992). Lipton (1980) further argues that because it is generally not the poorest who migrate the most, migrant remittances are very likely to increase inequality in labour-exporting communities.

Lipton (1980), Entzinger (1985) and Lewis (1986) still argue that there is a high tendency that remittances would be spent on conspicuous consumption and "consumptive" or non-productive investments such as acquisition of real estate and, for that matter, are rarely invested in productive enterprises. Besides weakening local economies and increasing dependency, increased consumption and land purchases by migrants were also reported to provoke inflationary pressures (Russell, 1992) and soaring land prices (Appleyard, 1989; Rubenstein, 1992). Also, in a socio-cultural respect, the effects of migration and remittances were increasingly seen as detrimental to the overall development of poor nations. Exposure to the wealth of migrants was assumed to contribute to a change in rural tastes (Lipton 1980) that would increase the demands for imported goods, which further reinforces the system for continuous dependency.

The unending desire for remittances has often been linked with the loss of social solidarity which undermines the socio-cultural integrity of labour-exporting communities (Hayes, 1991). Again, Durand *et al* (1996) warned that remittances should be considered as 'deceptive' and 'risky', because they cannot be expected to be stable and permanent source of income. From this perspective, South-North migration was perceived as discouraging instead of encouraging the autonomous economic growth of migrant-sending countries. Such views conform to the historical-structuralist paradigm on holistic development that perceives international migration as one of the many reasons why low-income countries continue to depend on the global political-economic systems (see Massey *et al*, 1993).

3.1.3 Developmental-Remittance Pluralist Theory

This school emerged as a response to developmentalist and neoclassical theories (the optimists) and structuralist theory (the pessimists) which regard the earlier entrenched positions as too static and deterministic to deal with the complex realities of the international remittance-development nexus. The pluralists, thus, provide a much more dynamic insight into understanding migration and development relationship, which connects the causes and consequences of migration more explicitly, and in which all possible positive and negative development responses are taken into account.

3.2 Empirical Literature on Remittances and Socioeconomic Development

World Bank (2006) concludes from an empirical study that remittances generally reduce poverty and can redistribute income. More specifically, Cordoza (2005) finds that in Mexico those

regions with a greater share of households receiving remittances have fewer people below the poverty line. Mora and Taylor (2004) confirm that, in Mexico, both internal and international remittances reduce rural poverty, but international remittances reduce poverty much more. It was also observed that educational attainment increases the likelihood of internal migration to non-farming regions, but this does not have any effect on international migration. Cox-Edwards and Ureta (2003) also find that, in El Salvador, increased remittances result in greater investment in human capital through higher school enrolment which is seen as a vital supply-side pre-requisite for development and growth of a country.

Adams (2006) finds that in Guatemala both internal and international remittance payments reduce the level, depth and severity of poverty. The poorest 10 percent receive between 50 and 60 percent of total household income from remittances. Those households benefiting from remittances are more likely to spend more on education, housing and health, whilst those with no remittances spend higher proportion of their incomes on food and other consumer durables. Those households receiving international remittances spend 58 percent more on education than non-receiving households.

Lucas (1987) reveals that remittances from migrant mine workers led to less hours of work in the agricultural sector for recipients, resulting in an increase in hiring of wage labour which enhanced productivity in South Africa. Gustafsson and Makonnen (1993) find that remittances in Lesotho are highly important household incomes, because between 11 and 14 percent more households in Lesotho would be classified as poor if they were denied receipt of remittances.

According to Kapur (2003), the shares of remittances to GDP tend to be rather high in labour-exporting countries such as Brazil, Mexico, Morocco, India or the Philippines, and even higher in some small countries, especially island economies in the Caribbean, the Pacific or the Atlantic. Although middle-income countries receive most remittances, in relative terms they tend to be more important to small and sometimes very poor countries such as Haiti, Lesotho, Moldova and Tonga, which often receive more than 10 percent of their GDP in remittances (World Bank, 2006).

Most studies conclude that international remittances have reduced poverty either directly or indirectly. On the basis of an analysis of a dataset covering 71 developing countries, Adams and Page (2005) conclude that migrant remittances significantly reduce the level, depth and severity of poverty in the developing world. Their results suggest that, on average, and after controlling for the possible endogeneity of international remittances, a 10 percent increase in per capita international remittances leads to a 3.5 percent decline in the proportion of people living on less than $1.00 per person per day. Teto (2001) estimated that 1.17 million out of 30 million Moroccans would fall back into absolute poverty if they were denied the receipt of international remittances, whilst the proportion of the population living below the national poverty line would increase from 19.0 to 23.2 percent. This increase would be from 27.2 to 31.0 percent in rural communities, and from 12.0 to 16.6 percent in urban centres. Another analysis of Egyptian and Ghanaian survey data equally indicates that migration enables low-income earners to move out of poverty. However, it also found that the largest determinant of current poverty status for all groups was their past poverty situation, highlighting the existence of poverty traps (Sabates-Wheeler *et al*, 2005).

Adams (1991), however, in a study based on a survey of 1000 households in rural Egypt used income data from households with and without migrants to determine the effects of remittances on

poverty, income distribution and rural development. The findings indicate that although remittances were helpful in alleviating poverty, paradoxically they also contributed to inequality in the distribution of income.

3.3 Theoretical Framework

From a macroeconomic viewpoint, the inflow of international remittances can be considered as an injection into a Keynesian-type circular flow of income in remittance-recipient countries. Remittance inflows, like any other injection into the circular flow, increases economic activity by increasing the level of aggregate expenditure, which could be in the form of higher household expenditure on consumer goods, increased business expenditure on investment goods, and increased government expenditure on welfare services. The increased spending could be on both domestic and foreign goods depending upon the exchange rate and the relative elasticity of demand for foreign and domestic goods. An increase in real disposable income of a country would more likely raise the demand for foreign goods and promote social welfare through sustenance, self-esteem and freedom from servitude at the micro level, so long as the increased income is arising from increased remittance inflows. The likely increase in demand for imported goods is linked to exchange rate appreciation and the fact that increasing international remittance flows is associated with increasing economic openness and integration.

At the micro and meso levels, higher remittance inflows may lead to higher access to essential social infrastructure like potable water, educational and healthcare facilities, besides the increased positive externalities. In import-dependent developing countries like those in SSA (perhaps with the exception of Republic of South Africa, Cote d'Ivoire, Cape Verde, Mauritius, Seychelles, and some of the oil-exporting countries like Nigeria and Namibia), increased remittance inflows may result in moral hazards arising from higher voluntary unemployment, higher income inequality, exchange rate appreciation and the "Dutch Disease", especially in small-open import-dependent economies. This implies that the remittance inflows can have dual effect on socioeconomic development in low-income countries. All other things being equal, positive net remittance inflows can stimulate increased real economic activities while negative net remittance inflows could have the opposite effect. However, economic development goes beyond increases in real economic activity related to injections into the economy. Economic development requires that the economy is transformed to permanently increase its productive capacity such that there is equitable distribution of income, greater diversification of the economy, and improved quality of human life.

From theoretical and empirical analyses, the impact of remittances on an economy is inconclusive depending upon the context of the analysis - whether a micro, a meso, or a macro level analysis was used. The impact of remittances on any economy at whichever level may also depend upon some fundamental structural differences in general. This implies that to examine the actual impact of remittances on the human society, there is the need to use an all-embracing comprehensive index, such as the human development index (HDI). The HDI is a comprehensive measure of life expectancy, literacy, education and standards of living for 182 countries worldwide as at the year 2007. Remittances are a measure of financial manifestation of a complex network of social ties established between migrants, their families, and their communities of origin and, therefore, there is a need to examine its macroeconomic, social, political, and cultural consequences from the pluralist viewpoint. In this paper, however, a macroeconomic analysis of the long-run implications of international migrant remittances for human development was explored from the pluralists' perspective.

4.0 DATA, EMPIRICAL MODEL AND METHODOLOGICAL ISSUES

4.1 Data Description and Sources

In many empirical studies, international remittances have been defined and measured in broad and narrow scope by different scholars. These definitions and measurements are: (i) remittances being computed as the sum of *compensation of employees*, *workers' remittances* and *migrants' transfers*; (ii) the sum of *compensation of employees* and *workers' transfers*; and (iii) the total of *migrants' transfers* plus an additional category in the Balance of Payments Statistics (BoPS) Yearbooks, namely *other current transfers*.

The International Monetary Fund (IMF) defines *compensations of employees* as the gross earnings of workers residing abroad for less than 12 months, including the value of in-kind benefits (under the current account subcategory, "income"). *Workers' remittances* are the value of monetary transfers sent home from workers residing abroad for more than one year (under the current account subcategory, "current transfers"). *Migrants' transfers* represent the net wealth of migrants who move from their country of employment to another, often the native country (under the capital account subcategory, "capital transfers"). *Other current transfers* are the component that covers transfers in cash or in kind between individuals, between non-official organizations such as religious bodies, migrant associations, and other non-governmental organisations (NGOs) and between an individual and a non-official organization. Such transfers include gifts, inheritances, alimony and other support remittances, non-contractual pensions from NGOs, compensation for damage, and so on recorded under *other private transfers*. This component also includes non-contractual pensions from foreign governments recorded under *other official unrequited transfers*.

In this paper, the author contributes to the theoretical measurement of international migrant remittance inflows by defining them as the sum of *workers' remittances* and *migrants' transfers* which are the benefits associated with permanent migrant residency. Thus, since the focus of this study is to examine the impact of international migrant remittance inflows on overall human development which is a long-run phenomenon, short-term migration benefits such as compensation of employees are considered relevant in this context. In Table 2 below, a summary of the definitions, measurements and sources of the variables and their *a priori* signs is provided.

Table 2: Definition, Measurement, Sources of Data and Expected Sign of Variables

Variable	Definition, Measurement and Sources	*A Priori* Sign
International Migrant Remittances (IMR)	International Migrant Remittances computed as the sum of workers' remittances and migrants' transfers as a share of GDP. **Source**: Computed from Balance of Payments Statistics (BoPS) Yearbooks.	*Indeterminate* (+/-)
Investment (INV)	The ratio of gross fixed capital formation to GDP. **Source**: Computed from International Financial Statistics (IFS) Yearbooks.	*Positive* (+)
Human Capital (HCA)	Human capital development was measured as secondary school enrolment rate of total population. **Source**: African Development Bank.	*Positive* (+)
International Trade Openness (ITO)	The sum of value of exports and imports to nominal GDP. **Source**: Computed from IFS Yearbooks.	*Indeterminate* (+/-)
Rate of Inflation (INF)	The natural logarithmic form of consumer price index was used as a proxy for domestic rate of inflation. **Source**: IFS Yearbooks.	*Negative* (-)
Government Expenditure (GXP)	Government consumption of final goods and services as a ratio of GDP is used as a proxy for government size. **Source**: Computed from IFS Yearbooks.	*Indeterminate (+/-)*
Time Dummy (TDUM)	A dichotomous variable of 0 for 1987-1999 and 1 for the years 2000-2007 to capture the impact of technological innovations and market integration.	*Indeterminate* (+/-)

***Source**: Author's compilation*

The study made use of balanced annual panel data, spanning from 1987 to 2007, involving 18 low-income countries from SSA. The selection of the countries was essentially dependent on availability of data, the income classification of the country by the African Development Bank as at 2005 using the per capita gross national income, and the HDI ranking of the country by the UNDP. According to their income status and the 2007 HDI rankings, all the 18 countries in the panel are ranked among the bottom one-third (see Table A2 in the Appendix for details). Meanwhile, between the year 2000 and 2007, four of these countries – Kenya, Senegal, Togo and Uganda - were among the leading recipients of migrant remittances in SSA when ranked as a ratio of GDP. All these four countries together with Benin are still among the leading recipients of migrant remittances in SSA when measured items of export earnings.

4.2 The Empirical Model

A complete logarithmic model was specified to examine the macroeconomic impact of international migrant remittance inflows (IMR) on integrated human development (HDV) in SSA. The model specified for the empirical analysis, which is in the tradition of Barro (1996), but modified to include international migrant remittance inflows as one of the explanatory variables of an otherwise conventional endogenous socioeconomic development model of the form:

$$\ln HDV_{it} = \beta_0 + \beta_1 \ln IMR_{it} + \beta_2' \ln Z_{it} + \beta_3 TDUM_t + \mu_{it}$$

such that HDV_{it} represents overall human development proxied by the marginal variations in human development index as reported by the UNDP. IMR stands for international migrant remittance inflows measured as the proportion of migrant remittance inflows to GDP in constant US dollars, Z represents a set of control variables[1], TDUM stands for time dummy which takes the value of zero for all years preceding 2000 and 1 for all other years, *ln* is the notation for natural

[1] The inclusion of government spending, trade openness, inflation, and human capital in the set of control variables was largely informed by the works of Barro and Sala-i-Martin (1995), Barro (1996), and Guiliano and Ruiz-Arranz (2005).

logarithm, whilst μ_{it} is an *i.i.d.* stochastic term. The notations β_1, β_2', and β_3 are row vectors of coefficients of the current values of the respective pre-determined variables.

The empirical model suggests that, from a development economics perspective, the degree of total human development of any country at any point in time *(HDV_{it})* depends on the amount of international remittances received (IMR), and current values of some control variables *(Z)*, which have been widely used in previous empirical studies, as well as theoretically acknowledged in development economics. The inclusion of a time dummy variable (TDUM) is not just to conform to the theoretical recommendation for efficient estimators, but also to verify if there has been any significant structural change in human development with the advent of higher pursuit of globalisation and market integration since the year 2000.

The control variables included in *Z* consist of a wide array of potential socioeconomic factors that can be used to explain total variations in overall human development from macroeconomic perspective. The relevant methodological approach to this study is to include a set of macroeconomic variables that has been widely used and acknowledged in a number of recent empirical economic growth and development models. In specifying the empirical model, therefore, the works of Forbes (2000), Banerjee and Duflo (2003), Knowles (2005), and Fayissa and Nsiah (2008) were taken into account. Accordingly, the initial control variables included secondary school enrolment as a proxy for human capital development (HCA), gross fixed capital formation as a percentage of real GDP which is used as a proxy for investment (INV), inflation (INF) proxied by the logarithmic form of consumer price index, government expenditure (GXP) as a ratio of GDP, and international trade openness (ITO) which was proxied by the ratio of total exports and imports to gross domestic income. Even though the inclusion of the regressors was based on recent empirical findings on economic growth and development, the actual estimation followed a general-to-specific approach in arriving at the estimated parsimonious model reported in Table 3.

4.3 Methodological Approach

The estimation procedure adopted in this study is fundamental to the conventional panel data modelling of fixed-effects. Even though dynamic panel data estimation could have provided a more comprehensive result, it could not be pursued considering the fact that this is a panel data estimation with a large 'T' small 'N'. Under this circumstance, the necessary condition for dynamic panel data estimation is violated since the number of instruments exceeds the number of observations. The fixed-effects methodology incorporates a dummy that allows the constant term for the entire group to vary across countries, but fixed for each country. An alternative way of estimating a linear panel data is to follow random-effects modelling which assumes that each country differs in error term rather than in constant term. However, in balanced panel data estimation, the fixed-effects estimation is expected to be more efficient than the random effects (Asteriou, 2006). Notwithstanding this recommendation, the study estimated both the fixed-effects and the random-effects and tested for the specification following the Hausman's procedure to select the more efficient empirical model. The results (see Table A5 and Table A6 in the Appendix) show that, indeed, the fixed-effects estimation was more efficient and consistent. In this regard, fixed-effects are constant over time and across countries such that they are absorbed into the intercept which makes the parameter estimates of the estimated fixed-effects model unbiased and efficient.

Prior to the estimation of the empirical model, the order of integration of each variable was examined following the Im, Pesaran, Shin (IPS) and ADF-Fischer Chi-Square procedures so as to

avoid spurious regression. The panel unit root test results as reported in Table A3 under Appendix shows that, at the conventional levels of statistical significance, all the variables are integrated of order one. In order to establish the long-run panel cointegrating relationship, the residual was subjected to the Engle-Granger two-step test. Under the fixed-effects estimation procedure, the residual is not expected to vary across the various sub-groups, and hence similar to the residual obtainable from static long-run relationship under traditional time series single equation estimation. The panel cointegration results which confirm that the variables are cointegrated are reported in Table A4 under the Appendix. The graphical representation of the I(0) residual is shown in Figure A1 in the Appendix.

5.0 PRESENTATION AND ANALYSIS OF EMPIRICAL RESULTS

Given the above, the empirical panel cointegration model followed the fixed-effects estimation procedure. The empirical results of this fixed-effects model are presented in Table 3 below.

Table 3: Results of the Impact of International Remittances on Human Development

Fixed-Effects Panel Regression			Number of Observations: **378**			
Group Variable: **CCODE**			Number of Groups: **18**			
Time Variable: **Year**			Obs per Groups: **Min=21**, **Avg=21**, **Max=21**			
Corr (u_i, xb): **-0.3122**			F(7, 353): **25.47** Prob>F: **0.0000**			
Modelling Development (HDV) by Fixed-Effects Panel Estimation Procedure						
lnHDV	**Coefficient**	**Std. Error**	**t-stat**	**P>ltl**	**[95% Conf.**	**Interval]**
lnIMR	0.6610634	0.0536748	12.32	0.000	0.5558627	0.7887649
lnINV	1.3343730	0.3320788	4.02	0.000	1.9874740	0.6812711
lnGXP	0.3026275	0.1261307	2.40	0.021	-0.0425823	0.6478373
lnITO	1.2169950	0.2879290	4.23	0.000	0.6507234	1.7832670
lnHCA	-0.3972802	0.2878524	-1.38	0.168	-0.9634015	0.1688410
lnINF	-0.1198326	0.3293809	-0.36	0.716	-0.7676283	0.5279630
TDUM	-0.1856878	0.2305567	-0.81	0.421	-0.6391253	0.2677497
CONSTANT	-2.4054920	0.3304328	-7.28	0.000	-3.0553560	-1.7556270
R-Square = 0.7327			F test that all u_i=0: F(17,353) = 9.41			Prob > F = 0.0000
Adjusted R-Squared = 0.6719			Sigma_u = 1.384602			Sigma_e = 1.547994

***Source**: Author's estimation*

The results show that the estimated regression line is a good-fit. The samples in the group did not vary thereby registering 21 for the minimum, 21 as the mean and the maximum value of 21. The F-statistic of 9.41, on the assumption that variations in the error term across groups is fixed, was significant at one percent, suggesting that the explanatory variables jointly explain total variations in the human development within the sub-region. The stochastic term is largely independent from the explanatory variables as revealed by the correlation coefficient of -0.3122. The adjusted R-squared suggests that, at least, 67 percent of the long-run total variations in overall human development can be attributed to the explanatory variables included in the estimated model after taking into account the appropriate degrees of freedom.

From the empirical results, a one percent increase in international migrant remittance inflows partially accounts for 0.66 percent improvement in overall human development at one percent level of significance. Contrary to popular opinions that trade liberalisation could worsen the socioeconomic progress of small-open low-income countries, at one percent level of statistical significance, the empirical results show that international trade openness is one of the most important positive determinants of overall human development in SSA during the past two decades. An economic policy that leads to a one percent further openness of SSA to international trade has the potential of enhancing overall human development of the sub-region by 1.22 percent. This is possible if the implementation of trade liberalisation policy culminates in job creation, large-scale production leading optimal capacity utilisation among domestic industries, and increased competition among local enterprises and their foreign counterparts.

In consonance with the *a priori* expectation, investment into physical infrastructure has emerged as the single most important factor promoting human development within SSA sub-region. If governments within the sub-region can put policies in place to increase investment by one percent, they will succeed in enhancing overall human development by 1.33 percent in the long run. It is also evident that, for the period under investigation, on the average, government expenditure within the sub-region has been human-centred. A one percent rise in government expenditure has the potential of promoting human development by 0.30 percent in the long run.

Quite strikingly, the rate of inflation, human capital accumulation proxied by secondary school enrolment, and the time dummy to capture technological innovations and market integration of SSA countries into the global economy do not impact on overall human development within the sub-region at the conventional confidence intervals. It is possible that over the long run, the ordinary citizen might either get used to the pressures of inflation or might form the right expectations about price fluctuations within the sub-region. The fact that human capital development measured as secondary school enrolment does not impact upon overall human development statistically could imply that the curriculum of the educational system which was used during the past two decades might be irrelevant to advance the socioeconomic progress of the sub-region through higher labour productivity. Alternatively, given that a large proportion of the population of the sub-region are still illiterates who engage in economic activities concentrated in the primary sector on which the SSA economy largely depends, and the fact that there is high rate of graduate unemployment and underemployment, it is possible school attainment might not impact significantly on overall human development within the SSA sub-region.

6.0 POLICY OPTIONS AND CONCLUDING REMARKS

This paper examined the long-run macroeconomic implications of international migrant remittance inflows on human development in low-income countries within the SSA sub-region. In testing the central hypothesis that international migrant remittance inflows do not influence the overall human development within the SSA sub-region, the paper used the fixed-effects model to analyse balanced panel annual data on 18 SSA countries for the period, 1987 to 2007. The conclusion of this paper validates the prediction of the remittance-optimistic school that, as far as the overall human development is concerned, in the long run, international migration can be beneficial to low-income countries through increased international migrant remittance inflows. This

implies that there is the need for policymakers within the SSA sub-region to improve conditions to attract higher migrant remittances to the sub-region through officially approved channels.

Further, the findings of this paper suggest that there are other equally important macroeconomic factors such as investment in physical infrastructure, international trade openness and government expenditure that significantly enhance integrated human development in SSA. Therefore, in formulating an appropriate macroeconomic policy for promoting overall human development in SSA, although it would be prudent to incorporate international migrant remittance inflows, it would be inappropriate to relegate the traditional macroeconomic variables especially investment, trade openness and government expenditure.

Based on the empirical findings, this paper recommends the following macroeconomic policy options to stimulate overall human development in SSA:

- There is the need to attract more international remittances from nationals living abroad. Specific strategies such as reducing the cost of international money transfers and boosting the efficiency of the international money transfer mechanisms should be put in place. Besides, the pursuit of more attractive real interest rate in the SSA sub-region is vital to attracting saved remittances from nationals living abroad. Perhaps, the most effective approach would be to liberalize interest rates in SSA which would make financial institutions more competitive and profit-oriented through intermediation rather than engaging in various rent-seeking activities outside the main functional roles.

- To promote total human development in SSA sub-region, apart from putting policy measures in place to strategically attract increased international migrant remittances, governments within the sub-region should also ensure that they create the enabling environment that will boost investment into physical infrastructure. This will create more job opportunities for the reserved labour force.

- Efforts should be made by governments of SSA sub-region to ensure that a substantial proportion of government expenditure favours the domestic economy so as to create jobs and expand the domestic market size. This implies that governments within the sub-region should practice good governance, and erect effective barriers against public sector corruption and the abuse of state funds and property. This way, governments of the sub-region can spend their scarce economic resources in a manner that can stimulate human development of the citizenry.

- Finally, policymakers must ensure that relevant policy measures are put in place to further open the economies of the sub-region to cross-border trade. As international trade breeds competition among local and foreign business enterprises, consumer sovereignty is enhanced, and hence improved socioeconomic status in the long run.

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APPENDICES

Table A1: Gross National Income Per Capita of SSA Countries

	GNI Per Capita (US$)			
	1980	**1990**	**2000**	**2005**
Benin	410	370	390	540
Ethiopia	-	170	110	110
Gambia	380	310	320	300
Ghana	430	400	330	420
Guinea	-	460	450	490
Kenya	450	380	360	470
Malawi	190	200	170	170
Mali	270	270	240	380
Niger	430	310	180	240
Nigeria	780	270	260	410
Rwanda	250	370	260	220
Senegal	530	720	490	670
Sierra Leone	340	200	130	200
Sudan	470	580	330	540
Tanzania	-	190	280	350
Togo	450	440	320	390
Uganda	-	350	270	280
Zambia	630	450	320	460

Source: African Development Bank (2006) Selected Statistics on African Countries

Table A2: Recent HDI Rankings of Sampled Sub-Saharan African Countries

		2006	2007
1	BENIN	163	161
2	ETHIOPIA	171	171
3	GAMBIA	156	168
4	GHANA	139	152
5	GUINEA	157	170
6	KENYA	155	147
7	MALAWI	166	160
8	MALI	175	178
9	NIGER	178	182
10	NIGERIA	159	158
11	RWANDA	160	167
12	SENEGAL	158	166
13	SIERRA LEONE	177	180
14	SUDAN	142	150
15	TANZANIA	165	151
16	TOGO	142	159
17	UGANDA	145	157
18	ZAMBIA	167	164

***Source**: Human Development Reports 2006 & 2009*

***Note**: 2007 Rankings are out of 182 countries whereas 2006 rankings are out of 178.*

Table A3: Results of Panel Unit Root Test

		Im, Pesaran, Shin W-Stat		ADF-Fisher Chi-Square Stat		
Variable	# of Lags	IPS Stat	Prob.	ADF-F Stat	Prob.	Conclusion
lnINF	1	0.59441	0.7293	35.1660	0.5081	Non-Stationary
D(lnINF)	1	-2.22196	0.0131	50.8906	0.0511	Stationary*
lnITO	1	0.12269	0.5488	38.3067	0.3652	Non-Stationary
D(lnITO)	1	-7.61243	0.0000	124.112	0.0000	Stationary**
lnGXP	1	0.29661	0.6166	31.2145	0.6955	Non-Stationary
D(lnGXP)	1	-5.81820	0.0000	98.7351	0.0000	Stationary**
lnHCA	1	0.50626	0.6937	39.7990	0.3047	Non-Stationary
D(lnHCA)	1	-4.42686	0.0000	75.0179	0.0001	Stationary**
lnHDV	1	0.50626	0.6937	39.7990	0.3047	Non-Stationary
D(lnHDV)	1	-4.42686	0.0000	75.0179	0.0001	Stationary**
lnINV	1	-1.12014	0.1313	43.2728	0.1887	Non-Stationary
D(lnINV)	1	-7.43043	0.0000	121.612	0.0000	Stationary**
lnIMR	1	0.74274	0.7712	36.9709	0.4239	Non-Stationary
D(lnIMR)	1	-2.25694	0.0120	75.0207	0.0001	Stationary**

Source: *Author's estimation* **(**) denote significant at 5(1) percent*

Table A4 : Results of Engle-Granger Panel Cointegration Test

Panel Unit Root Test of Residual
Sample: 1987 2007
User specified lags at: 1
Newey-West bandwidth selection using Bartlett Kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.79305	0.0000	18	348
Im, Pesaran & Shi W-Stat	2.61087	0.0003	18	378
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	88.4741	0.0000	18	378
PP - Fisher Chi-square	95.2471	0.0000	18	378

** Probabilities for Fisher tests are computed using an asympotic Chi -square distribution. All other tests assume asymptotic normality.

Source: *Author's estimation*

Figure A1: Graphical Representation of the Residual

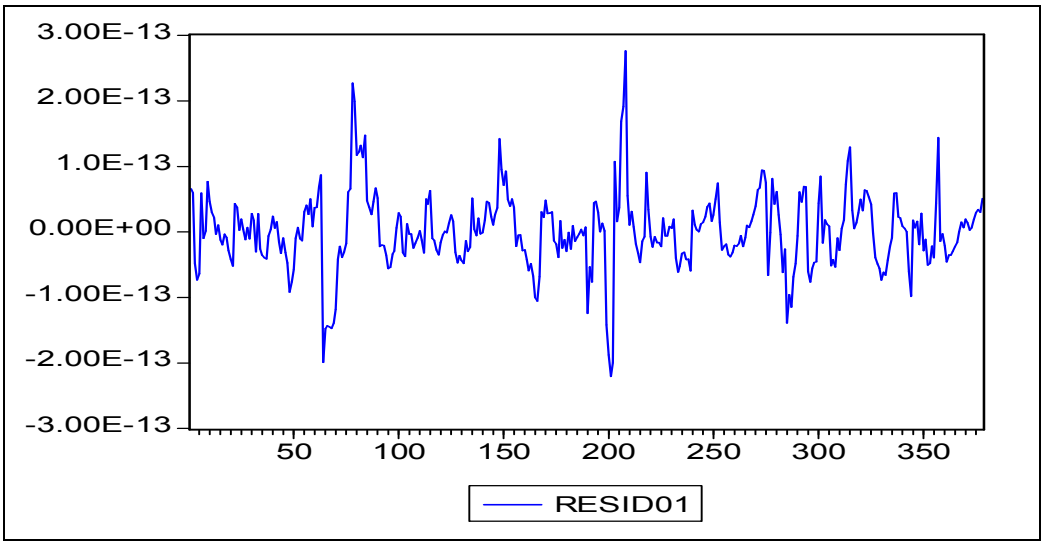

Table A5: Modelling Development (HDV) by Random-Effects Panel Estimation Procedure

Random-Effects Panel Estimation				Number of Observations: **378**		
Group Variable: **CODE**				Number of Groups: **18**		
Time Variable: **Year**				Obs per Groups: **Min=21**, **Avg=21**, **Max=21**		
Corr (u_i, x): **0** (assumed)				Wald $Chi^2(7)$: **246.74** Prob>Chi^2: **0.0000**		
lnHDV	**Coefficient**	**Std. Error**	**z**	**P>lzl**	**[95% Conf.**	**Interval]**
lnIMR	0.6610634	0.0536748	12.32	0.000	0.5558627	0.7662640
lnINV	0.7157240	0.2633697	2.72	0.007	1.2319190	0.1995288
lnGXP	0.2753906	0.1601108	1.72	0.086	-1.1582250	0.7090062
lnITO	0.8614474	0.1283054	6.71	0.000	0.6099734	1.1129210
lnHCA	-0.2011701	0.2093833	-0.96	0.337	-0.6115523	0.2092120
lnINF	-0.1324020	0.3244817	-0.41	0.683	-0.7683745	0.5035705
TDUM	-0.2652622	0.2079515	-1.28	0.202	-0.6728397	0.1423153
CONSTANT	-2.3475932	0.3102834	-7.57	0.000	-2.9557380	-1.7394520
R-Squared (within) = 0.3287		Sigma_u = 0.82241957				
(between) = 0.7816		Sigma_e = 1.3547994				
(overall) = 0.6102						
Random Effects u_i ~ Gaussian						

***Source**: Author's estimation*

Table A6: Results of Hausman Fixed (Model Specification Comparison Test)

	Coefficients			
	Fixed (b)	**(B)**	**Difference (b-B)**	**sqrt(diag(V_b-V_B)) S.E.**
lnINF	-0.1198326	-0.132402	0.0125694	0.0565983
lnIMR	0.6708932	0.6610634	0.0098298	0.0266655
lnITO	1.2169950	0.8614474	0.3555480	0.2577612
lnGXP	0.2753906	0.3026275	-0.0272370	0.1326217
lnINV	1.3343730	0.715724	0.6186488	0.2022689
lnHCA	-0.3972802	-0.201170	-0.1961101	0.1975296
TDUM	-0.1856878	-0.265262	0.0795744	0.0995619

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
$Chi^2(7)$ = (b-B) ' [(V_b-V_B)^(-1)] (b-B)
= **-178.20** $Chi^2<0$ ==> model fitted in these data fails to meet the assumptions of the Hausman test; see suest for a generalized test

***Source**: Author's estimation*