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Do International Remittances Promote Human Development in Poor Countries? Empirical Evidence from Sub-Saharan Africa

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Abstract: This study examines the macroeconomic impact of inward international remittances on human-centered development in 15 Sub-Saharan African countries. Following the fixed-effects balanced panel data estimation procedure for the period, 1987 to 2007, the empirical results reveal that, indeed, international remittance inflows impact positively on human development in the long run. As per the empirical findings, the study concludes that, given the irreversible high propensity to travel abroad among the productively active citizens of the sub-region in a bid to earn a decent wage, the relevant institutions and policymakers within the sub-region should devise appropriate strategies and policy framework to attract higher remittances from abroad. The empirical model and methodology used in this study are relevant and, hence, can be applied in related fields of study.

Key words: Remittances, human development, fixed-effects panel data estimation, Sub-Saharan Africa, developing countries

INTRODUCTION

The clue to socioeconomic development has eluded many developing countries worldwide in spite of the numerous growth and development models that have been propounded, especially soon after World War II. Many of these development models centered on real per capita income growth and distribution, accumulation of capital and other productive resources including the human resource, heavy industrialization for structural transformation, poverty alleviation and affirmative action, foreign direct investment and foreign aid as well as economic liberalization and globalization. None of these models has been able to adequately address the perennial problem of underdevelopment, particularly in countries of Sub-Saharan Africa (SSA) descent. This is evident in the fact that nearly 50% of the total population of Africa are still poor as at 2007 (Appendix 1). It is for this very reason that governments, international organizations such as the World Bank and the United Nations, development experts and economists are still struggling to find the right antidote to reverse the seemingly perpetuating underdevelopment of countries in Africa, Latin America, the Caribbean and South East Asia.

Meanwhile, despite the high level of technological advancement in the modern world, human capital is still considered as one of the most expensive and critical 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, not only in terms of size, but also in terms of population growth and density. Thus, generally, high population growth and density tend to correlate

positively with underdevelopment. This situation compels developing countries that are traditionally characterized with lack of the requisite non-human resources to stimulate rapid and sustainable development, to be producing far below their full potentials, culminating in high rates of unemployment and underemployment with low wages. As a result of this, across developing countries, many young professionals, semi-skilled as well as energetic unskilled segment of their population have developed an irresistible desire for traveling abroad to seek greener pastures. In this era of globalization 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 labor-exporting country. It is for this reason that developing countries as a whole have consistently been the largest recipient of international remittances in the world. Today, official 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 total amount of official migrant remittances received by developing countries has increased more than 300%. Even with this fast growing trend in official 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 amount of official flows since a significant amount 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 and governments 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 in search of relatively more rewarding jobs rather than to stay at home unemployed or underemployed. 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 housing, others are of the opinion that remittances are mostly spent on financing income-generating activities and investment projects. To whatever use remittances are put, it is expected to ultimately reflect in the socioeconomic progress and overall development of the human society.

Results from various empirical studies across developing countries have proven that the impact of international remittances on social welfare is inconclusive. For instance, Adams and Page (2005) and IMF (2005) on cross-country samples, Adams (2006) on Ghana, Nguyen (2008) on Vietnamese households, Portes (2009) on 46 developing countries between 1970 and 2000, Hoti (2009) on Albanian household sector, Gyimah-Brempong and Asiedu (2009) on Ghanaian households and Kalim and Shahbaz (2009) on Pakistan, all conclude that international remittances reduce absolute poverty significantly in developing countries. In many cases, however, remittances promote income inequality as the very poor of the society who could not bear the high traveling costs of their family members do not receive international remittances (Hoti, 2009; Nguyen, 2008; Adams, 2006). On the contrary,

McKenzie and Rapport (2004) and Portes (2009) found that increased inflows of international remittances reduce income inequality in developing countries.

Thus, even though at micro 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 specific-country and cross-country basis, none of these studies analyzed the impact of remittances on overall human development. The purpose of this study, therefore, is to examine the extent to which international remittance inflows have promoted overall human development in poor countries. The study focuses on 15 poor SSA countries using balanced panel data from 1987 to 2007.

MATERIALS AND METHODS

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 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. A summary of the official flows of remittances, portfolio assets and ODA to developing countries is presented in Table 1.

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 one-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, remittance flows to developing countries increased by more than 300% to US$96.5 billion in the year 2001. By the end of 2005, remittance flows to developing countries had increased further to US$194.2 billion.

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

Table 1: Foreign capital flows to developing countries (in US$ million), 1980-2005

	Year					
Variable	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

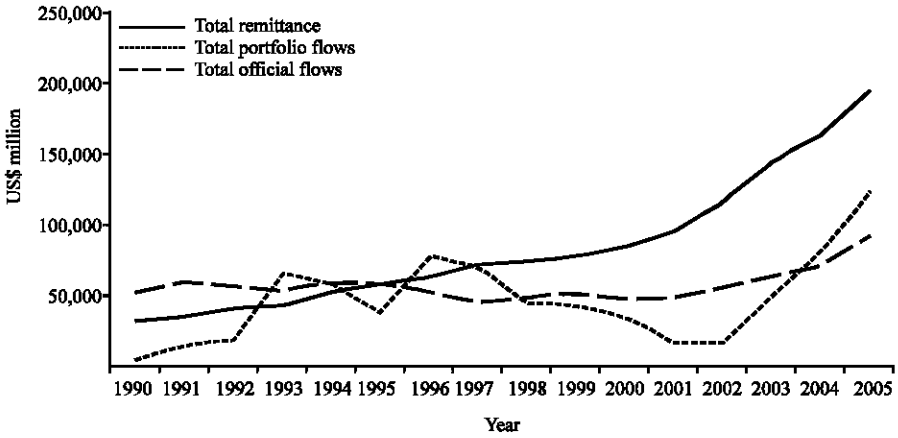

Fig. 1: Trends in official, portfolio and remittance flows to developing regions, 1990-2005. Source: Author's own estimation based on data in Table 1 above

Review of Theoretical Literature on Remittances and Socioeconomic Development

As far as the developmental impact of remittances is concerned, there are two main schools of thought, the Developmental Optimistic School inspired by the neoclassical migration hypothesis and the Developmental Pessimistic School of the structuralist dependency inclination. Recently, a third school of thought, the Remittance-Developmental Pluralists, which represents a compromised position of the two traditional schools, has emerged.

According to the views of remittance-developmental optimists, remittances could increase investment and subsequently stimulate development and modernization of an underdeveloped economy. In particular, migrant remittance-developmental optimists argue that international migration leads to a North-South transfer of investment capital and accelerates the exposure of labor-exporting communities to liberal, rational and democratic ideas, modern knowledge and education.

Migrant remittance-developmental pessimists, in a counter-argument, posited that the net effect of international migration and remittances is only to sustain or even reinforce the problems of underdevelopment rather than promoting sustainable development. Besides the brain drain syndrome, the massive departure of active segment of the population causes a critical shortage of labor, depriving poor countries of their most valuable workforce (Lipton, 1980; Rubenstein, 1992). Lipton (1980) further argues that because it is generally not the poorest of a society who migrate more frequently because of the high cost of traveling abroad, migrant remittances are likely to increase inequality in labor-exporting communities. It is further argued 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. This implies that remittances have the potential of sparking inflation in low-income remittance-dependent countries.

Advocates of the third school of thought, remittance-developmental pluralists, consider the earlier positions of the remittance-developmental optimists and the remittance-developmental pessimists as too static 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.

Review of Empirical Literature on Remittances and Socioeconomic Development

World Bank (2006) concluded from an empirical study that remittances generally reduce poverty and can help redistribute income in developing countries. More specifically, Gupta *et al.* (2007, 2009) established that international remittances have contributed to poverty reduction and financial development in SSA, just as Jongwanich (2007) found for some developing countries in the Asia-Pacific region for the period 1993-2003. Mora and Taylor (2004) confirmed 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-farm engagements, but this does not have any effect on international migration. Edwards and Ureta (2003) also found 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 an economy.

Adams (2006) found that in Guatemala both internal and international remittance payments reduce the level, depth and severity of poverty. The poorest 10% receive between 50 and 60% 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% more on education than non-receiving households.

Lucas (1987) revealed 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 labor which enhanced productivity in South Africa. Gustafsson and Makonnen (1993) found that remittances in Lesotho form a significant proportion of household incomes, because between 11 and 14% 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 high in labor-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% of their GDP in remittances (World Bank, 2006).

Most studies concluded 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) found 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% increase in per capita remittances led to a 3.5% 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 have increased from 19.0 to 23.2%. This increase in poverty would be from 27.2 to 31.0% in rural communities and from 12.0 to 16.6% in urban centres. In another

analysis of Egyptian and Ghanaian survey data, it was observed that migration enabled poor people to move out of poverty. However, the study 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*., 2008).

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 suggested that although remittances were helpful in alleviating poverty, paradoxically they also contributed to inequality in the distribution of income in an economy.

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 beneficiary countries. Remittance inflows, like any other injection into the circular flow, stimulates economic activities 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 and Seychelles and some 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 effects on socioeconomic development. Other things being equal, positive net remittance inflows can stimulate real economic activity while negative net remittance inflows have the opposite effect. However, economic development goes beyond increases in real economic activity connected 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 179 countries worldwide as at 2008. 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.

Data, Empirical Model and Methodological Issues

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: (1) remittances being computed as the sum of compensation of employees, workers' remittances and migrants' transfers; (2) the sum of compensation of employees and workers' transfers; and (3) the total of migrants' transfers plus an additional category in the Balance of Payments Statistics (BoPS), namely other current transfers. In this study, international remittance inflows are measured in its broadest sense as the sum of all the four components viz. compensation of employees, workers' remittances, migrant's transfers plus other current transfers since the first-three components are directly restricted to migrants only, but the focus of this study is to examine the impact of total remittance inflows on integrated human development. Another justification for measuring remittances in its broadest terms is to reduce the magnitude of underestimating errors associated with migrant remittance flows to developing countries, where it is believed migrants from poor countries are by far more likely to use unapproved/unofficial channels to remit home.

It is essential to note that the International Monetary Fund (IMF) reports remittance flows under four different sections in its BoPS. 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 organizations (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.

A summary of the definitions, measurements and sources of the explanatory variables and their a priori signs is provided in Table 2.

The study made use of balanced annual panel data, spanning from 1987 to 2007, involving 15 poor countries from SSA. The selection of the countries was essentially dependent on availability of data and the HDI ranking of the country. According to the latest rankings, with the exception of Cape Verde which lie at the very bottom of the highest two-thirds, all the 14 remaining countries in the panel are ranked among the bottom one-third (Appendix 2). Meanwhile, five of these countries (Cape Verde, Kenya, Senegal, Togo and Uganda) are among the leading recipients of remittances in SSA when ranked as a ratio of GDP. All these five countries together with Benin are still among the leading recipients of remittances in SSA when measured items of export earnings.

Table 2: Definition, measurement, sources of data and expected sign of variables

Variable	Definition, measurement and sources	A priori sign
Remittances (REM)	International remittances computed as the sum of compensation of employees, workers' remittances, migrants' transfers and other current transfers as a share of GDP. Source: Computed from Balance of Payments Statistics (BoPS)	Indeterminate (+/-)
Investment (INV)	The ratio of gross fixed capital formation to GDP. Source: Computed from International Financial Statistics (IFS)	Positive (+)
Human capital (HCA)	Human capital was measured as secondary school enrolment rate of total population. Source: African Development Bank	Positive (+)
International trade openness (TOP)	The sum of value of exports and imports to nominal GDP. Source: Computed from IFS	Indeterminate (+/-)
Consumer price index (CPI)	The logarithmic form of CPI was used as a proxy for domestic rate of inflation. Source: IFS	Indeterminate (+/-)
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	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	Positive (+)

There are no unique scientific units of measurement of any of the variables as each variable is measured as a ratio. Source: Author's compilation

The Empirical Model

A simple log-log fixed-effects model was specified to examine the responsiveness of overall human development (HDV) to international remittance inflows (REM) from economic development perspective at the macro level. The empirical model specified below, comprises international remittance inflows as one of the explanatory variables of an otherwise orthodox general socioeconomic development model of the form:

$$\ln HDV_{it} = \varphi_0 + \varphi_1 \ln REM_{it} + \varphi'_2 \ln Z_{it} + \varphi_3 TDUM_t + \mu_{it} \quad (1)$$

where, the dependent variable ($\ln HDV_{it}$) represents overall human development proxied by the marginal variations in human development index as reported by the UNDP, REM stands for international remittance inflows measured as the proportion of remittance inflows to GDP in constant US dollars, Z represents a set of control variables, 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 logarithm, whilst μ_{it} is an i.i.d. stochastic term. The notations φ_1, φ'_2 and φ_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 (REM) 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 globalization 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) 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 proxied by the logarithmic form of Consumer Price Index (CPI), government expenditure (GXP) as a ratio of GDP and trade openness which was proxied by the ratio of total exports and imports to gross domestic income (TOP). 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.

Methodological Approach

The estimation procedure adopted in this study is fundamental to the traditional panel data modeling of fixed effects. Even though dynamic panel data estimation could have provided a more comprehensive result, it could not be applicable in this particular context considering the fact that this is 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 modeling which assumes that each country differs in error term not 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 as reported in Appendices 5 and 6 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 results. The panel unit root test results as reported in Appendix 3 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 Appendix 4.

This study was conducted at Glisten Research and Statistical Analysis Centre (GLISTEN-RASAC) in Accra, Ghana between June and September, 2009. The software used for analyzing the data was STATA 10.0.

Presentation of Empirical Results

From the foregoing, the empirical panel cointegrated model followed the fixed-effects estimation procedure. The empirical results of this fixed-effects model are presented in Table 3.

Table 3: Results of the impact of international remittances on human development

Fixed-effects panel regression			Number of Observations: 307			
Group Variable: CCODE			Number of Groups: 15			
Time Variable: Year			Obs per Groups: Min = 17, Avg = 20.5, Max = 21			
Corr (u_i, xb): 0.3754			F(7, 285): 48.34 Prob>F: 0.0000			
Modelling development (HDV) by fixed-effects panel estimation procedure						
lnHDV	Coefficient	SE	t-stat	P>ltl	[95% Conf.	Interval]
lnREM	0.0099607	0.0040254	2.47	0.014	0.0020373	0.0178841
lnINV	0.0773074	0.1148334	0.67	0.501	-0.1487218	0.3033367
lnGXP	0.2544244	0.0815603	3.12	0.002	0.0938874	0.4149613
lnTOP	0.1301469	0.0503068	2.59	0.010	0.0311268	0.2291670
lnHCA	0.0782612	0.0081951	9.55	0.000	0.0621307	0.0943918
lnCPI	0.0168214	0.0044442	3.79	0.000	0.0080738	0.0255690
TDUM	0.0185032	0.0099492	1.86	0.064	-0.0010101	0.0380865
Constant	-1.2750680	0.0344780	-36.98	0.000	-1.3429320	-1.2072040
R^2 = 0.956462		F test that all u_i = 0: F(14,285) = 111.59				Prob>F = 0.000000
Adjusted R-Squared = 0.953253		Sigma_u = 0.17937849				Sigma_e = 0.0502961

Source: Author's estimation

ANALYSIS OF EMPIRICAL RESULTS

The empirical results show that generally, the estimated regression line is a good-fit. The samples in the group did not vary widely thereby registering 17 for the minimum, 20.5 as the mean and the maximum value of 21. The F-statistic of 111.59, on the assumption that variations in the error term across groups is fixed, was significant at 1%, 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 0.3754. The R-squared and the adjusted R-squared suggest that, at least, 95% of the long-run total variations in human development can be attributed to the explanatory variables.

From the empirical results, a 100% increase in international remittance inflows partially accounts for 1% improvement in overall human development at 1% level of statistical significance. At 1% level of statistical significance, government expenditure is a major positive determinant of overall human development. A 100% increase in government spending results in an increase in human development by more than 25%. Openness to international trade has significant positive impact on overall human development as a 100% enhancement in trade openness leads to a 13% improvement in overall human development within the sub-region. At 1% level of statistical significance, a 100% increase in the accumulation of human capital by way of increasing secondary school enrolment partially promotes overall human development by 7.8% in the SSA sub-region. The time dummy for globalization and market integration during the 21st century has a marginal positive impact on long-run improvements in integrated human development within the sub-region. In this regard, a 100% improvement in technological innovations and market integration of SSA countries into the global economy would stimulate human development by 1.9%. Quite surprisingly, whilst investment into physical infrastructure does not have any long-run effects on human development in SSA, a 100% increase in price level leads to a 1.7% improvement in human development.

Government expenditure plays a foremost direct role in the enhancement of the overall human development in SSA probably, because within the sub-region, the public sector including central governments is the major consumer of final goods and services. By implication, the higher the government expenditure, the more effective is the demand for final goods and services and the larger the size of the domestic market for final goods and

services within the sub-region. Also, contrary to the pessimistic views of the industrial organization theorists on trade liberalization, trade openness has significant positive impact on human development as citizens of SSA would now have the opportunity and freedom to consume different kinds of products from abroad. Further, trade openness has the potential of expanding domestic markets, increasing competition among local industries especially with regard to output expansion and compliance to international quality standards, as well as industry competition between local firms and their foreign counterparts. Ceteris paribus, in the long run, trade openness should enhance overall human development in SSA as job opportunities are created, unemployment and dependency ratios are reduced, consumption per capita of diversified and sophisticated consumer goods and services are increased, which in the long run contribute to enhancing human development.

It is not startling that educational attainment has been identified as one of the key factors that explains the level of overall human development within the SSA sub-region in consonance with the a priori expectation. As people acquire higher skills and new knowledge through formal education, they are in a better position to take informed decisions that improve upon their personal welfare. Since, the sub-region is well-known for its high population growth and density as well as high unemployment rate, through formal education, people are more likely to be gainfully employed which is often associated with higher wages and hence general improvement in the quality of their lives.

Globalization and integration of world economies are having positive effects on human welfare in developing countries including those within the SSA sub-region. With the advent of globalization and integration, government economic policies within the sub-region have become more outward-oriented with higher impetus for enterprise growth and large-scale production. Perceptibly, as these economies become more outward-oriented, more job opportunities are created and social welfare is enhanced. The empirical results also give the impression that higher price levels connote opportunity for higher entrepreneurial profit margins within the SSA sub-region, which explicably drives the entrepreneurial society to expand production base. Output expansion in search of higher profits necessitates entrepreneurs employing more factors of production which then reduces unemployment and underemployment within the sub-region. It can, therefore, be inferred from the foregoing that in economies where high levels of unemployment and underemployment exist, it is evident that higher price level could have a positive impact on overall human development in the long run. However, the fact that investment does not have any statistical impact on human development is an indication that, within the SSA sub-region, investment projects are not human-centered.

International remittances have a positive marginal effect on overall human development within the SSA sub-region, which suggests that, largely, remittances might be used directly for meeting the basic human necessities of life such as food, financing education, healthcare, housing and protection. Thus, international remittances are invariably serving as extra incomes to augment the low level of income per capita within SSA sub-region. This finding is consistent with previous results obtained by Adams and Page (2005) for a sample of developing countries, Adams (2006) for Ghana and Portes (2009) for 46 developing countries.

CONCLUSIONS

This study was set out to investigate the long-run macroeconomic impact of international remittance inflows on overall human development in SSA. The conclusion of

this study affirms the position of the remittance-optimistic school that increased international remittance inflows promote human-centered development in poor countries. However, there are other factors that appear more significant in enhancing overall human development than international remittances within SSA. These factors, in descending order of significance, include government spending, international trade openness, educational attainment, market integration and technological improvements and to some extent inflation proxied by price levels. By implication, even though there is the need for governments and policymakers to consider ways of enhancing remittance inflows as a compensation for the brain drain syndrome that has particularly engulfed the SSA sub-region in recent years, the macroeconomic policy framework for promoting overall human development should also encompass the expansionary trade and fiscal policies.

With regard to specific macroeconomic policy options on promoting overall human development in SSA, this study puts forward the following policy prescriptions:

- There is the need to attract more international remittances to SSA. 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 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 their main functional roles
- In a bid to promote human development within the sub-region, SSA governments and policymakers should not over-rely on international remittance inflows since there are other macroeconomic factors such as government expenditure, trade openness and educational attainment that are even more crucial in stimulating overall human development within the sub-region. For instance, apart from attracting higher international remittances, effective measures must also be put in place to ensure that government expenditure favors the domestic economy so as to create jobs and expand the domestic market size.
- Governments within the SSA sub-region should formulate and implement open trade policies that are human-centered. There is also the need for governments to focus on human capital development through the attainment of higher formal education, at least, up to the secondary school level, so as to promote overall human development within the SSA sub-region

APPENDIX

Appendix 1: Poverty trends in SSA (1978-2007)

Results	1978	1984	1990	1996	2002	2005	2007
Sub-Saharan Africa							
% of total population	59.8	55.0	55.0	57.5	52.7	50.4	49.9
No. of persons (millions)	174.3	238.6	284.5	347.6	373.2	384.2	392.3
All Developing Countries							
% of total population	56.4	47.1	41.8	34.7	31.0	25.7	24.4
No. of persons (millions)	1,922.3	1,827.1	1,826.6	1,672.0	1,627.1	1,399.6	1,314.4

Author's estimation based on data from World Bank sources. A poor person is defined here following the World Bank as someone whose average daily earnings fall below US$ 1.25 at 2005 purchasing power parity

Appendix 2: Recent HDI rankings of sampled SSA countries

No.	Sub-Saharan African countries (SSA)	2006	2007	2008
1	Benin	161	161	161
2	Cape verde	118	118	118
3	Ethiopia	169	169	169
4	Ghana	142	142	142
5	Kenya	144	144	144
6	Mali	168	168	168
7	Namibia	129	129	129
8	Niger	174	174	174
9	Nigeria	154	154	154
10	Rwanda	165	165	165
11	Senegal	153	153	153
12	Sudan	146	146	146
13	Tanzania	152	152	152
14	Togo	159	159	159
15	Uganda	156	156	156

Source: Human Development Report (2006, 2007, 2008) UNDP. Note: Rankings are out of 179 countries

Appendix 3: Results of panel unit root test

		Im, pesaran, Shin W-stat		ADF-fisher Chi-square stat		
Variable	No. of Lags	IPS Stat	Prob.	ADF-F Stat	Prob.	Conclusion
LCPI	1	0.48002	0.68440	31.01140	0.41480	Non-Stationary
D(LCPI)	1	-2.38410	0.00860	45.31470	0.03610	Stationary*
LTOP	1	-0.00830	0.49670	34.31420	0.26840	Non-Stationary
D(LTOP)	1	-6.27483	0.00000	94.47240	0.00000	Stationary**
LGXP	1	-0.70102	0.24160	32.52130	0.34370	Non-Stationary
D(LGXP)	1	-5.43641	0.00000	82.98880	0.00000	Stationary**
LHCA	1	0.34411	0.63460	34.74300	0.25210	Non-Stationary
D(LHCA)	1	-4.35707	0.00000	65.89510	0.00020	Stationary**
LHDV	1	-1.90443	0.02840	53.47550	0.00530	Non-Stationary
D(LHDV)	1	-6.67063	0.00000	96.12290	0.00000	Stationary**
LINV	1	-1.34161	0.08990	39.61010	0.11260	Non-Stationary
D(LINV)	1	-6.63246	0.00000	99.24260	0.00000	Stationary**
LREM	1	0.41335	0.66030	29.51890	0.49050	Non-Stationary
D(LREM)	1	-6.26148	0.00000	92.94350	0.00000	Stationary**

Source: Author's estimation. *,**Denote significant at 5 and 1%, respectively

Appendix 4: 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 and Chu t*	-4.26176	0.0000	15	277
Breitung t-stat	-2.74973	0.0030	15	262
Null: Unit root (assumes individual unit root process)				
ADF-Fisher Chi-square	69.3649	0.0001	15	277
PP-Fisher Chi-square	75.4626	0.0000	15	292

**Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. Source: Author's estimation

Appendix 5: Modelling development (HDV) by random-effects panel estimation procedure

Random-effects panel estimation	Number of Observations: 307
Group Variable: CCODE	Number of Groups: 15
Time Variable: Year	Obs per Groups: Min = 17, Avg = 20.5, Max = 21
Corr (u_i, x): 0 (assumed)	Wald $\chi^2(7)$: 338.49 Prob>χ^2: 0.0000

lnHDV	Coefficient	SE	z	P>lzl	[95% Conf.	Interval]
lnREM	0.0112063	0.0041662	2.69	0.007	0.0030407	0.0193720
lnINV	0.1878018	0.1176109	1.60	0.110	-0.0427114	0.4183150
lnGXP	0.2882242	0.0845376	3.41	0.001	0.1225336	0.4539148
lnTOP	0.1398129	0.0519825	2.69	0.007	0.0379291	0.2416967

Appendix 5: Continued

lnHDV	Coefficient	SE	z	P>lzl	[95% Conf.	Interval]
lnHCA	0.0860487	0.0084651	10.17	0.000	0.0694574	0.1026401
lnCPI	0.0138373	0.0046441	2.98	0.003	0.0047351	0.2293950
TDUM	0.0176109	0.0104662	1.68	0.092	-0.0029025	0.0381244
Constant	-1.3188710	0.0435124	-30.31	0.000	-1.4041540	-1.2335880

R-Squared (within) = 0.5502 Sigma_u = 0.09424898
(between) = 0.7007 Sigma_e = 0.0502961
(overall) = 0.5985
Random Effects u_i ~ Gaussian

Source: Author's estimation

Appendix 6: Results of Hausman fixed (model specification comparison test)

Coefficients	Fixed (b)	(B)	Difference (b-B)	sqrt (diag(V_b-V_B)) SE
LCPI	0.016821	0.0138373	0.0029841	-
LREM	0.009961	0.0112063	-0.0012456	-
LTOP	0.130147	0.1398129	-0.009666	-
LGXP	0.254424	0.2882242	-0.0337998	-
LINV	0.077307	0.1878018	-0.1104944	-
LHCA	0.078261	0.0860487	-0.0077875	-
TDUM	0.018503	0.0176109	0.0008923	-

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, $\chi^2(7) = (b-B)' [(V_b-V_B)^{(-1)}] (b-B)$: -126.37 $\chi^2<0 \Longrightarrow$ model fitted in these data fails to meet the assumptions of the Hausman test; see suest for a generalized test. Source: Author's estimation

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