RELATIONSHIP BETWEEN FOREIGN REMITTANCE INDICATORS AND HUMAN CAPITAL DEVELOPMENT IN SUB-SAHARA AFRICA COUNTRIES

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Abstract

Foreign remittance inflow and outflow serves as a conduit through which many countries all over the world depend on for human capital development and global competitiveness. However, irrespective of the huge benefits accruable from foreign remittance, Sub-Saharan Africa (SSA) countries still fall short in terms of human capital development. Based on this truism, the present study investigated the nexus between foreign remittance indicators and human capital development in Sub-Sahara Africa from 1990 to 2018. Specifically, the study analysed the impact of workers and migrant remittance inflows on human capital development index having controlled for other macro-economic indicators and foreign inflows such as foreign direct investment, GDP per capital, and official foreign assistance. Data for the study were analysed using, fixed effect model. Findings emanating from the fixed effect model revealed that, when all foreign remittance inflows are efficiently controlled, it would affect significantly on human capital development. Hence, we conclude that, foreign remittance indicators are major determinants of human capital development in SSA. Thus, we advocate that governments in SSA countries should track all forms of illegalities and corruption tendencies arising from migrant remittance inflows as such transfer could help development, and that workers' remittance, foreign direct investment inflow, and official foreign assistance should be encouraged.

Keywords: Migrant Remittance Inflows, Workers' Remittance Inflows, GDP per Capital, human capital development index, Sub-Sahara Africa

Introduction

Foreign remittance inflow and outflow serve as a conduit through which many countries all over the world depend on for human capital development and global competitiveness. Given the rise in foreign remittance in and outside Sub-Sahara Africa (SSA) coupled with the crucial role it plays in human capital development, there is the urgent need for SSA to address all challenges *arising* thereto. More so, with the increasing number of persons travelling abroad in recent years, the discourse on migration, foreign remittance, and human capital development has taken the front burner.

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Available evidence reveals that sizeable proportion of SSA population resides overseas for so many reasons and one of such reasons is to search for better opportunities (greener pasture) since opportunities in the home country are either politicised or not enough to meet the needs of the teeming population (Komla, 2018) According to World Bank report (2018), Nigeria, Ethiopia, South-Africa, Uganda, Cote D'Ivoire were ranked as the first five countries in SSA with the highest migration stock in 2017. On the overall, the numbers of SSA population travelling overseas has been on the increasing over the years but when compared to the total population of SSA, it tends to decrease (Komla, 2018).

A review of the literature revealed that though empiricists in the areas of foreign remittance inflow and outflows have raised diverse opinions and arguments. However, most of these studies centred mostly on the rationale behind foreign remittance inflow and outflows, foreign remittance cost, its impact on economic growth, its impacts on human capital development etc. Despite the increase in foreign remittance inflows to SSA, only few empiricists have been able to establish a link between foreign remittance indicators and human capital development in SSA. Notably, it has been widely acknowledged that the avalanche of these empirical studies abounds in Asian and Latin America countries (Gyimah-Brempong & Asiedu, 2015). The available studies conducted in SSA are limited in scope (Salas, 2014; Chauvet, Gubert, &Mesple-Somps, 2013; Zhunio, Vishwasrao, & Chiang, 2012) in that most of them tend to focus on just an aspect of either foreign remittance or human capital development.

More so, there has been conflicting issues on the interaction between the benefits accruable from foreign remittance and the detrimental effects of migrant opportunities on human capital development. It has been argued that, migration is detrimental to an economy in that it brings about brain drain, encourages illegality, corruption, embezzlement of public funds, as well as discourages financial flexibility and accountability (Ahmed & Mughal, 2015).Most benefiting households tend to use money remitted for consumption purposes at the expense of economic development (Ahmed & Mughal, 2015; Manic, 2015). Conversely, migrant and workers' remittances are used to invest in human capital vis-à-vis health care and education, which would not have otherwise been made due to cash crunch and huge up-front costs (Seyed, 2018; Bouoiyour & Miftah, 2016; Chauvet, Gubert & Mesple-Somps, 2012). However, these conflicts apparently can be resolved by comparing remittance cost with its accrued benefits.

The fundamental objective of this paper is to establish the link between foreign remittance indicators and human capital development index (HDI) in SSA. More specifically, the present study sought to ascertain if migrant and workers remittance inflows influence human capital development in SSA. Accordingly, the present study would contribute to the relatively few empirical findings on foreign remittance indicators and human capital development index in SSA. It will aid policy formulation and implementation in the Sub-Sahara African health care and education sector. Lastly, the present study sheds more light on the importance of human capital development in the region.

Literature Review

This section covers the conceptual clarification and linkages of research variables, theoretical expositions, and extant empirical findings.

Conceptual Clarification and Linkage of Research Variables

The term 'foreign remittance inflows' refers to funds that migrants send through electronic transfer to their country of origin; particularly to their family members, friends and business associates. They in turn use these funds remitted to meet their basic needs (food, clothing, and shelter) as well as other needs such as health, education, acquisition of landed properties, investment needs, and the likes. According to World Bank (2018), foreign remittance is defined as the sum of migrant transfers, workers' remittances, and employees' compensation. It may also be viewed as Personal (workers) remittances Received (Awusi, 2016). Personal (workers) remittances Received comprises of personal transfers and compensation of employees. Personal transfers comprise all present transfers either in cash or in kind either made or received by migrant households to or from donor household (non-resident households). Thus, personal transfers include all present transfer of funds between migrant and donor individuals. On the other hand, employees' compensation accounts for funds, which are within the confine of one's country. Employees' compensation refers to seasonal and other short-term workers working who are gainfully employed wherein they are not residents and of residents employed by non-resident employers (Awusi, 2016).

Human capital development index on the other hand, refers to the measure of a country's life expectancy index, education index, and income index. The life expectancy index takes into consideration the health status of the citizenry; the education index accounts for the educational standard and the literacy ratio of the total population; while the income index account for the standard of living of the citizenry. More implicitly, Awusi (2016) averts that, human capital development revolves around three (3) key human capacity indicators namely: capacity to develop talent, capacity to efficiently utilise talent, as well as the capacity to attract talent from others. In other words, human development index tends to focus more on people and their intellectual capabilities. Collectively, these three (3) human capital indicators form the bedrock of any country's global competitiveness. Bouoiyour and Miftah (2016) added that human capital development serves as the conduit through which any country can experience all-round development for the reason that human capital development directly linked to human capital formation, which in turn culminates into qualitative and quantitative development. Such that, an increase in HDI in response to improvement in standard of living, education and health status of the citizenry can result to a proportionate increase in a country's per capita income.

Scholars over time have advanced various reasons behind investment in foreign remittance. Although, one of the dominate reason for such adventure is the search for greener pastures. Recent scholars have articulated other reasons for this: some of which include parent desire for educational attainment of their children. Bouoiyour and Miftah (2016) reiterate that parents invest in their children

education with the hope that in the near future such investment would generates a higher rate of return (RAR) than the return on savings (ROS). However, some parents in low-income households invest too little funds in their children's education since they cannot afford to finance their children's educational investments irrespective of such returns. Indeed, the reduction of these financial constraints will make education more accessible and affordable to less privilege children. Therefore, financial transfers (foreign remittance inflows) from family members residing overseas can lift the budget constraints and allow parents to invest in their children's education optimally. In another direction, Terrelonge (2014) argued that government in low-income countries invests in remittances with the hope to reduce child and adult mortality rate through improved living standards. This therefore suggests that, there exist a linkage between foreign remittance inflow and Human capital development index. This is explicitly presented below:

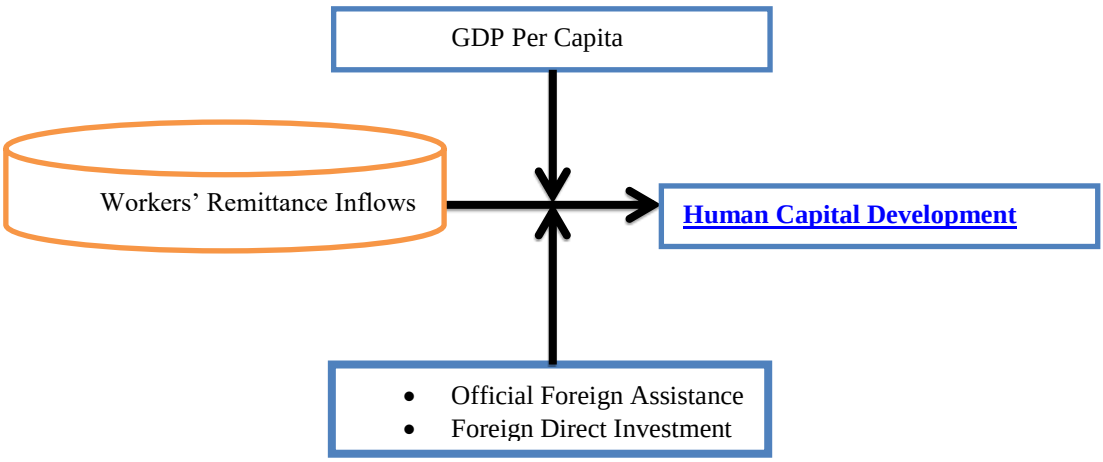

Figure 1: Linear Relationship between Foreign Remittance Indicators and Human Development Index
Source: Researchers' Model

The model in figure 1 above further suggest that, having controlled other factors, which affect the relationship between foreign remittance indicators and human capital development index (GDP per capita**,** official foreign assistance, and foreign direct investment), a Dollar increase in foreign remittance indicators vis-à-vis workers' and migrants 'remittance inflows will lead to a proportionate rise in human capital development index.

Theoretical Framework

The present study relies on the human capital theory and new economic theory of labour migration. Becker (1962) formalised human capital theory, holds that individual worker has distinct set of skills or abilities, which may be improved upon through training and development. By way of application, human capital theory laid emphases on human capital development. However, this theory did not link foreign remittance to human capital development. On the other hand, the new economic theory of labour migration was formalised by Stark (1991). This theory

holds that migration is a reliable strategy to negotiate the risks within domestic and international market Massey, Arango, Hugo, Kouaouci, Pellegrino and Taylor, 1993). This viewpoint holds true especially for SSA countries where cash credits and health insurance are expensive and less available. The theory further explains that, foreign remittances are the most common, reliable and sustainable source of income for many especially in low income countries. In other words, remittance is the only means through which impoverished households in low-income countries connect to the outside world (Gammeltoft, 2002).

Furthermore, this theory perceives remittances as explicit family loans, which are used to increase the long-run benefits of migration through investing in human capital of the receiving country (Poirine, 1997). Put differently, this theory perceives remittances as an explicit family loan such that the expenses incurred on migration are fully covered by the direct (positive) impact of foreign remittance inflows on human capital development of households (Gianetti, Federici & Raitano, 2009; Ghai, 2005). Within this framework, the manner in which workers' remittances are spent and invested in receiving countries has gain much significance in recent time reason been that migrants' remittances help to reduce the receiving country's poverty rate which in turn increase the standard of living of the receiving country which serve as perquisites for economic development.

Prior Empirical Findings/Perceived Gaps

Significant empirical studies have been conducted in the area of foreign remittance and human capital development both in high and low income countries. However, most of these studies are limited in scope in that most of the scholars focused on just an aspect of either foreign remittance or human capital development. Again, most of these studies conducted outside SSA may not be applicable in SSA but only serve as input to the present study. For example, Komla (2018) investigated the effects of remittances on education and health outcomes using a five (5) year interval data on forty-six (46) SSA countries from 1975 to 2014. Using the system Generalised Method of Moment (GMM), the study found that foreign remittance improve education and health care sector in SSA significantly and that education sector granger cause health care sector in SSA over the period of study. However, the researcher did not disaggregate foreign remittance into workers' remittance and migrant remittance. Should he have disaggregated foreign remittance into workers' remittance and migrant remittance; it may have provide more information about remittances.

Seyed (2018) investigated the impacts of workers' remittances on human capital and labour supply. The study covered 122 emerging countries, with data spanned from 1990 to 2015. The researchers used bilateral remittances to address the problems arising from endogeneity of foreign remittances. Results obtained in this study indicate that remittances increase per capita health expenditures but reduce under-nourishment prevalence, child mortality rate, depth of food inadequacies, and occurrence of dwarfism. Remittances also increase education index vis-à-vis school enrolment, school completion rate, and private school secondary and tertiary enrolment. Again, the result further revealed that it

influences the health outcome and education index of girls than that of boys. Lastly, foreign remittance inflows reduce the female labour force involvement rate but its impact on male labour force involvement rate is not noticeable. However, the researcher only focused on workers' remittance. However, the study is bereft of theoretical foundation.

Bouoiyour and Miftah (2016) examined the effect of migration and foreign remittance cost on educational attainment in southern Morocco. They discovered that the foreign remittance inflows in villages of southern Morocco have positive and significant effect on boy's school attendance than that of girls. However, school attendance alone does not adequately capture the quality of education instead school enrolment would have been a better measure of quality of education. Awusi (2016) compared the impact of foreign remittance inflows on human capital formation in 35 developed and 62 developing economies for the period of 11 years with data spanned from 2004 to 2014 using the panel data analysis. Foreign remittance inflow measured by personal remittance served as the independent variable while human capital formation measured by education indicators (enrolment into primary, secondary, and tertiary schools) and health indicator (health expenditure) served as the dependent variable. Foreign direct investment, GDP per capita, GNI per capita were used to control for the nexus between inflows of foreign remittance and human capital formation.

The researcher discovered that foreign remittance inflow exert positive and significant impact on enrolment into primary and secondary schools in developed countries but does not impact on enrolment into tertiary schools. However, in developing economies, foreign remittance did not influence any of the education index variables. The researcher further discovered a non-granger cause but inverse relationship between foreign remittance and Health indicator (health expenditure in both developed and developing countries but when control variables such as FDI, GNI, and GDP were added, it tends to be positive and significant. However, the researcher failed to consider income index being a major determinant of human capital development just like education and life expectancy index. More so, the study may not be applicable in the SSA context due to regulatory differences but may serve as input to the present study. Combes, Ebeke, Etoundi and Yogo (2014) examined the contributory role of remittances and foreign aid inflows in combating food price shock. The researchers discovered that remittance and aid inflows dampen the effect of the positive food price shock and food price instability on household consumption in vulnerable countries. Acharya and Leon-Gonzalez (2014) explored the contributory role of migration and foreign remittance on the educational attainment in Nepalese. Their results revealed that foreign remittances increase investment in the quality of education, which in turn prevents school dropouts. However, school attendance alone does not adequately capture the quality of education instead school enrolment would have been a better measure of quality of education.

Salas (2014) conducted an empirical study on the effects of foreign remittance inflow on human capital formation in Peru. The researcher discovered

that foreign remittance has a significant impact more on the cost of a child's choice of school enrolment in that private schools provide enhanced learning atmosphere than public schools. The researcher further discovered that, foreign remittance give parents the opportunity to invest in their children education. However, the researcher did not focus on other aspects (health and life expectancy index) of human capital development index.

Chauvet, Gubert and Mesple-Somps (2013) examined the impact of health aids, remittances and medical brain drain on the child mortality rate. They discovered foreign remittance improve medical brain drains but reduces child mortality rate. On the other hand, health aid also significantly dampens child mortality rate but its impact is less vigorous than the impact of foreign remittances. On the other hand, when mortality risks are low, foreign remittances tends to be high. However, this research may not be applicable in SSA countries since it was conducted outside SSA. Zhunio, Vishwasrao and Chiang (2012) did a cross-country analysis on the effect of foreign remittance inflow on education and life expectancy index in 69 low and middle-income countries. They find out that remittances play an important role in improving primary and secondary school attainment, increasing life expectancy and reducing infant mortality. However, the study lacked theoretical foundation.

Aysen and Darja (2012) examine the nexus between foreign remittance and human capital development. Specifically, the researchers compared the impact of foreign remittance on human capital development with the impact of official development assistance (ODA) and foreign direct investment (FDI) on human capital development. The study found that, foreign remittance has more impact on human capital development than other capital inflows vis-à-vis ODA and FDI. The study also discovered that democracy, emigration, brain drain, conflict was able to efficient control for the relationship between foreign remittance and human capital development.

Hypothesis Development

Sequel to the foregoing, the following pertinent research hypotheses were advanced in null form:

Ho1: Workers remittance inflow does not exert significant impact on human capital development index in SSA.

Ho2: Migrant remittance inflow does not exert significant impact on human capital development index in SSA.

Ho3: Either of the foreign remittance indicators does not granger cause any human capital development index in SSA

Research Methodology

This study adopted the Ex-post facto research design. This design was adopted because it permits the researcher to source information concerning a phenomenon but does not give the researcher the opportunity to manipulate variables of interest because they are verifiable. As such, it may be difficult if not impossible for the researcher to manipulate the variable of interest since such

phenomenon has occurred in retrospect (Simon & Goes, 2013). As suggested by Obadan (2016), the researcher is at liberty to explain the already occurred phenomena but does not have control over the possible cause. Major advantages of this research design is that it addresses the questions of Who, What, Where, When and How which are associated with a specific research problem. To overcome the issue of Stationarity, all the study data were first subjected to pre-test alongside diagnostic test. The statistical package used to run these analyses is the Econometric Views (E-Views) version 9.0. The study adopted the panel data analysis with a view to address the problem of endogeneity. More so, the essence of this approach is to provide policy implications, which are relevant to SSA. The four (4) selected SSA countries were chosen to cover the four cardinals (zones) of SSA namely North (Algeria), South (South Africa), West (Nigeria), and East (Kenya). Most importantly, these countries are well acknowledged among first ten (10) recipients in terms of foreign remittance inflows over the study period according to the World Bank Global Development Report (2018). Accordingly, data were sourced from these four countries at aggregate level from 1990-2018. The choice of the period is based on the fact that the period is considered to be large enough to make inferences on the relationship between the two constructs.

Model Specification

The model for the study was grafted from the empirical findings of Awusi (2016) but differs with respect to the inclusion of migrant remittance and official foreign assistance. Our model is stated thus:

$$HDI_{it}=\beta 0+\beta_1 WRI_{it}+\beta_2 MRI_{it}+\beta_3 GDP_{it}+\beta_4 OFA_{it}+\beta_5 FDI_{it}+\varepsilon_{it}$$

Where: HDI_{it} = Human Development Index for country *i* at year end *t*
WRI_{it} = Workers remittances Inflow for country *i* at year end *t*
MRI_{it} = Migrant Remittance Inflow for country *i* at year end *t*
GDP_{it} = GDP per capita for country *i* at year end *t*
OFA_{it} = Official Foreign Assistance for country *i* at year end *t*
FDI_{it} = Foreign direct investment for country *i* at year end *t*
ε_{it} = Stochastic Disturbance Term over cross section and time

To avoid spurious regression result, all variables of interest were logged.

Operationalisation of Research Variables

The independent (explanatory) variable in the study is foreign remittance indicator measured by workers and migrant remittances inflow while the dependent (explained) variable is human capital development index measured by aggregate human capital development index. GDP per capita, official foreign aids and foreign direct investment were included to control for the relationship between the two constructs. Table 1 below outlined how these variables are operationalised:

Table 1: Operationalisation of Research Variables

Denotation	Variables	Nature of variable	Measures	Aprioiri Expectation	Sources
HDI	Human Development Index	Dependent	Aggregate Human Development Index		WDI
WRI	Workers' Remittance Inflow	Independent	Personal Transfer + Employees' Compensation (current US$)	Positive	WDI
MRI	Migrants' Remittance Inflow	Independent	Migrant Remittance Inflow (current US$)	Positive	
GDP	GDP per capita	Control	GDP per capita (current US$)	Positive	WDI
OFA	Official Foreign Assistance	Control	Official Foreign Aids (% of GDP)	Negative	
FDI	Foreign Direct Investment	Control	Foreign direct investment, net inflows (% of GDP)	Negative	

Note: *Natural logarithm of the independent variable WDI- World Development Indicator*

Result

This section dealt with the data analysis obtained from the study as well as discussion of the regression result. This section critically examined preliminary analysis, diagnostic, alongside the model estimation and interpretation.

Preliminary Analysis

This section covers some preliminary analysis before the regression proper. These were done decisively to check the trends and pattern of movements and collinearity of variables using Pearson Correlation Matrix, and Panel Unit Root test. Table 2 below gives a fair description of the Pearson correlation coefficient generated from the data. Pearson correlation analysis is used to investigate strength (magnitude) of linear relationship between the study variables. In terms of relationship, Pearson correlation coefficient may either be positive (+) or negative (-). Notably, Pearson correlation coefficient is relevant to verify whether the data set is faced with multi-collinearity problem. According to Obadan (2016), multi-collinearity is a situation whereby there is high level of correlation between two (2) independent variables thereby rendering an insignificant variable to be significant by out-rightly increasing the standard error, which in turn forces the t-statistics to be below 2. By the rule of thumb, a Pearson correlation coefficient of 80% suggests the possibility of multi-collinearity while correlation value of 100% indicates a presence of a perfect association between the independent variables.

Table 2: Pearson Correlation Matrix for all the Study Variables

Study Variables	LOG(HDI)	LOG(WRI)	LOG(MRI)	GDP	FDI	LOG(OFA)
LOG(HDI)	1.000000					
LOG(WRI)	0.310587	1.000000				
LOG(MRI)	0.505674	0.420101	1.000000			
Log(GDP)	0.556898	0.161139	-0.185095	1.000000		
Log(FDI)	-0.153328	0.453084	0.170145	-0.425715	1.000000	
LOG(OFA)	0.152695	0.158408	0.685577	-0.548003	0.552857	1.000000

The Pearson Correlation Coefficient above revealed that, dependent variable have positive correlation with all independent variables except foreign direct investment. This indicates that on the overall, foreign remittance indicators has positive association with the human capital development in SSA. Specifically, correlation between migrant remittance inflows and human capital development is the highest indicating that, migrant remittance inflows can be relied upon for policy formulations. Next is gross domestic product per capital indicating that, gross domestic product per capital efficiently controlled for human capital development in SSA. The third highest is workers remittance inflows with a correlation coefficient of 31.06% indicating a moderate linear relationship with the foreign remittance. Lastly, the rest two foreign inflows (foreign direct investment and official foreign assistance) were ranked fourth and fifth position. The study further confirmed the relative importance of foreign remittance in actualising human capital development and global competitiveness. However, the result further revealed a very low correlation indicating that there is low tendency of multi-collinearity in the data series. This further suggests that the result of the study is free from multi-collinearity problem and that it can be relied upon for policy formulation.

Basically, economic data tends to assume some form of stationarity (a situation whereby an economic data has a constant mean, constant variance, and the co-variance which rely solely on the time between lagged observations); however, beyond mere assumptions there is need to test if these economic data are actually stationary or non-stationary. This is owing to the fact that, non-stationary can lead to misleading and bias inferences. This study used the Levin, Lin and Chin unit root test to ascertain the stationarity of the variables. The major reason for the use of the Levin, Lin and Chin unit root test is that they established the foundation for panel unit root test (Awusi, 2016). The result is presented below:

Table 3: Summary of Panel Unit Root Test (All Data were Logged)

Study Variables	**Statistics**	**Probability Value**	**Order of Integration**	**Remark**
Human capital Development Index	-5.21125	0.000	1(1)	Stationary
Workers' Remittance Inflows	-2.38645	0.0085	1(1)	Stationary
Migrant Remittance Inflows	-4.01321	0.0000	1(1)	Stationary
GDP Per Capital	-3.59978	0.0002	1(1)	Stationary
Foreign Direct Investment	-1.91943	0.0275	1(1)	Stationary
Official Foreign Assistance	-4.42382	0.0000	1(1)	Stationary

The panel unit root test result above revealed that, all the study variables are stationary at 5% level of significance since their respective p-values at first

difference (1(1)) are at least less than 5% level of significance. It can be conclusively stated that the variables under investigation do not possess unit roots and are integrated at order 1 (i.e. 1(1)) as shown in table 3 above. Hence, we conclude that all the variables attained stationarity.

Diagnostic Test

The Jarque-Bera (JB) chi-square statistics revealed that all the study variables are normally distributed since their respective p-values are less than 5% level of significance. Hence, we reject the null hypothesis and accept the alternative hypothesis, which states that, the data series are normally distributed as such should be relied upon for prediction

Regression Analysis: Model Interpretation

In a bid to ensuring that the statistical inferences to be drawn for the study are reliable, valid, and accurate, this section presents the results of three (3) forms of estimation techniques/models vis-à-vis pooled ordinary least square (Pooled OLS), Random Effect Model (RAM), and Fixed Effect Model (FEM) carried out in this study. More so, Hausman cross-sectional test was conducted to know the most appropriate model to adopt. The results are presented below:

Table 4: Regression Output of Pooled OLS, Random and Fixed Effect Models, and Housman Specification

Study Variables	Pooled OLS Coefficient (t-statistics) {p-values}	Random Effect Models Coefficient (t-statistics) {p-values}	Fixed Effect Model Coefficient (t-statistics) {p-values}
Constant (C)	-0.863008 (-5.234899) {0.0000}	-0.863008 (-5.076161) {0.0000}	-0.899011 (-4.508206) {0.0000}
Workers' Remittance Inflows	0.044170 (4.471643) {0.0000}	0.044170 (4.336049) {0.0000}	0.068504 (5.476233) {0.0000}
Migrants' Remittance Inflows	-0.029305 (-2.292860) {0.0238}	-0.029305 (-2.223334) {0.0282}	-0.042993 (-2.954716) {0.0041}
GDP Per Capital	0.076532 (7.286779) {0.0000}	0.076532 (7.065822) {0.0000}	0.096912 (7.156119) {0.0000}
Foreign Direct Investment	0.005563 (0.525769) {0.6001}	0.005563 (0.509826) {0.6112}	0.010869 (0.797876) {0.4272}
Official Foreign Assistance	0.016785 (5.058639) {0.0000}	0.016785 (4.905245) {0.0000}	0.020886 (5.551218) {0.0000}
R-squared	0.574808	0.574808	0.662905
Adjusted R-squared	0.555481	0.555481	0.527245
F-statistic	29.74138	29.74138	4.886521
Prob (F-statistic)	0.000000	0.000000	0.000000
Durbin-Watson stat	1.951752	1.951752	1.963920
Housman cross-sectional test			12.792912 {0.0254}

Note: t-statistics & P-values are in bracket () and parenthesis {} respectively.

Table 4 above presents the pooled ordinary least square model, random effect model and fixed effect model outputs. The decision rule here is that, accept the null hypothesis if its p-value is greater than 5% significance level but less than 95% confidence level otherwise reject the null hypothesis and accept the null hypothesis if its p-value is less than 5% significance level but greater than 95% confidence. Specifically, in deciding the best model to use for this study, Hausman specification test was conducted. The null hypothesis is that the preferred model is random effect; the alternate hypothesis is that the model has fixed effect. Accordingly, Hausman test provide evidence in favour of the fixed effect model since it p-value estimated at 0.0254 is less than 5% significance level. Therefore, the fixed effect model specification results are interpreted in this study. One major advantage of this model is that, it allows heterogeneity and that their intercepts (constant) differs as against the pooled ordinary least square model and random effect model. However, it is time invariant.

Furthermore, findings of the panel data regression analysis using fixed effect model for the selected SSA countries shown in Table 4 indicated that, R-squared of the variables was 66.29%. This explains the coefficient of determinants, resulting from a 'Goodness of fit' indicator that the percentage of the variance in the dependent variable explained correctively by the independent variables. As a measure of the overall fitness of the model, the R-squared indicated that, the model explained about 66.29% of the systematic variation in the value of dependent variable, which could be traced to the independent variables and about 33.71% of the variations in human capital development index of the sampled SSA countries were accounted for by other factors. This result was complimented by the adjusted R-squared (having considered the degree of freedom) of 52.72%, which was the proportion of total variance that could be explained by the model.

Additionally, the Durbin Watson statistics value of 1.963920, which is an approximate of 2 which indicates that there is no autocorrelation detected in the sample. Similarly, findings from the Fishers ratio (that is, the F-statistic) which is a proof of the validity of the estimated model presented a p-value of (0.000000) less than 0.05; this invariably suggested clearly that simultaneously, the explanatory variables were significantly associated with the dependent variable. In effect, on the overall foreign remittance indicators strongly influenced the human capital development in SSA. Thus, this provides enough evidence to reject the null hypothesis of the study, which states that foreign remittance indicators have no significant impact on human capital development in SSA.

The result revealed that workers remittance inflows have positive and statistical significant impact on human capital development index in SSA over the period of study. The positive result revealed that, 1 US dollar rise in workers remittance inflows results in 6.9% rise in human capital development. This result is in tandem with the aprioiri expectation. The result further substantiate the claim raised by earlier scholars that, workers' remittances are used to invest in human capital vis-à-vis health care and education, which would not have otherwise been made due to cash crunch and huge up-front costs (Seyed, 2018; Bouoiyour &

Miftah, 2016; Chauvet, Gubert & Mesple-Somps, 2012). This claim was further supported by the findings of Awusi (2016); Acharya and Leon-Gonzalez (2014); Combes, Ebeke, Etoundi and Yogo (2014). However, migrant remittance tends to have negative but significant impact on human capital development. This result is contrarily to the aprioiri expectation of the study. The negative result suggest that migrant remittance encourages brain drain, illegality, corruption, embezzlement of public funds, unnecessary spending as well as discourages financial flexibility and accountability. Specifically, migrant remittance dissuades nations from investing in human capital.

The result further revealed that, GDP per capital and Official Foreign Assistance efficiently controlled for the relationship between foreign remittance inflows and human capital developments in SSA. However, foreign direct investment though insignificant at the moment but it has the potential to increase human capital development in SSA in the near future. The policy implication here is that, foreign direct investment inflows should be encouraged as it has been found to have potential impact on human capital development in SSA.

Table 5: Summary of Hypothesis Testing

Variable	Coefficient	Prob.	Decision Rule	Conclusion
Workers' Remittance Inflows	0.068504	0.0000	**P-value<5%**	Significant-Reject Null Hypothesis
Migrants' Remittance Inflows	-0.042993	0.0041	**P-value<5%**	Significant-Reject Null Hypothesis
GDP Per Capital	0.096912	0.0000	**P-value<5%**	Significant-Reject Null Hypothesis
Foreign Direct Investment	0.010869	0.4272	**P-value>5%**	Insignificant-Accept Null Hypothesis
Official Foreign Assistance	0.020886	0.0000	**P-value<5%**	Significant-Reject Null Hypothesis

Conclusions and Recommendations

We reiterate here that, irrespective of the huge benefits accruable from foreign remittance yet SSA still fall short of human capital development over the years. Arising from this truism, the study underscores the impact of foreign remittance indicators on human capital development in SSA using 4 cross sectional units covering116 observations. Data for the study were analysed using fixed effect model. Findings emanating from the fixed effect model revealed that, foreign remittance indicators have high statistical significant impact on human capital development in SSA. Hence, we conclude that, foreign remittance indicators are major determinants of human capital development in SSA.

Sequel to the study findings, the following policy recommendations were made: Regulatory authorities should encourage more inflows of workers' remittance in SSA as it significantly influenced human capital development in SSA. Effort should be made to track all forms of illegalities and corruption tendencies arising from migrant remittance inflows into SSA. Government of SSA should ensure that Official foreign assistance inflows are directed towards capacity building. The current GDP Per capital should be sustained as it has been found to positively and significantly affect human capital development in SSA. Therefore, Government of SSA should promote synergy between local and international

investors since foreign direct investment inflows have potential impact on human capital development in SSA.

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