



Foreign Remittances, Good Governance and Human Development in Sub-Saharan Africa: Evidence from FMOLS and DOLS

¹Kabiru Kamalu, ²Wan Hakimah Binti Wan Ibrahim

^{1,2}Faculty of Business and Management, Universiti Sultan Zainal Abidin (UniSZA)

*Corresponding Author Email: kamalu.kabiru@gmail.com

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ABSTRACT

Even though some progress has been recorded in terms of GDP growth in Sub-Saharan Africa, still the region has high level of extreme poverty, income inequality, insecurity, consequently low human development. This study examined the effect of foreign remittances and governance on human development for 20 countries of sub-Saharan Africa, using data from 1996 to 2019. The study used FMOLS and DOLS methods to estimate the long run coefficients. All the variables are I(1), have cross section dependency and cointegrated. The results revealed that foreign remittances and governance promote long run human development in sub-Saharan Africa. The results also show that inflation, population growth and military expenditures found to have negative long run effect on human development, while financial development have positive long run effect on human development in sub-Saharan Africa. Therefore, to promote human development, policies that will attract and encourage sending remittances through official channel should be put in place, especially related to the cost of sending remittances to sub-Saharan Africa. Also, policies to strengthen institutions and provide quality regulatory and legal framework for equitable distribution of resources to reduce poverty, and the cost of doing business, thereby promoting business activities, human capital development, consequently higher human development.

Keywords: Remittances, Governance, Human development, Sub-Saharan Africa

JEL Classification: F24, N40, O15, O55.

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INTRODUCTION

The global trends of human development witnessed progression of many countries from one level of human development to the next, as a result of improvement in human capital, life expectancy and income, especially in emerging markets. According to human development report (HDR, 2020), out of the 189 countries included in human development index (HDI, 2019), 66 countries have very high human development against only 59 in 2018, while 34 countries categorised with low human development against 38 countries in 2018. However, 31 out of the 34 countries with low human development are from sub-Saharan Africa. Thus, it is evident that the region is bedevilled with various socio-economic and political problems, which constraints its development prospects (Asongu & Roux, 2016). Even though some sub-Saharan African countries like Mauritius, Seychelles, Botswana, Gabon and South Africa, have made progress in human development, but, many others, for instance, Togo, Central African Republic and Niger top the list of countries with lowest human development ranking in the world (HDR-UNDP, 2020). Although the rate of extreme poverty is going down across the African countries, however, most of the sub-Saharan African countries are not doing well as regards to the target set by Sustainable Development Goals (SDGs) of “no poverty” by the year 2030. Thus, with continuous trend in sub-Saharan African region, 90% of the population of the region, about 300 million people, will be extremely poor by 2030 (Verde & Tome, 2019).

Despite the differences in GDP growth experiences of countries in the sub-Saharan African, the tenacious problems of poverty, inequality, underdeveloped educational system and inadequate basic healthcare services remain persistent in all the countries of the region, consequently, increases the rate of migration from the region to develop countries of Europe and Asia in search of better life (Amega, 2018). Foreign remittance refers to the money sent by migrants' workers, to their families, friends or communities, in their countries of origin. It plays an important role to the recipient households as it alter their income-consumption relation, human capital development and healthcare service deliveries (United Nations, 2019). Moreover, remittances inflow channelled into physical capital investments and investment in the real sector have tendency to promotes long run GDP growth and development (Matuzeviciute & Butkus, 2016). Interestingly, remittances inflow to sub-Saharan African countries serves as an important source of foreign exchange earnings, which rose from \$29 billion in 2009 to \$48 billion in 2019, only dropped to 37 billion in 2020 due to Covid 19 pandemic. The strand of literatures revealed that foreign remittances promote human development (Huay et al., 2019; Sahoo et al., 2020) and human capital development (Amega, 2018; Gyimah-Brempong & Asiedu, 2015; Khraiche & Boudreau, 2020) in developing countries.

Governance refers to the way and manner policymakers designs and implements policy decisions for the betterment of their societies. Poor governance badly distorts and damaged the economic condition of a country, which contributes greatly to poor infrastructures, poverty, inequality, unemployment, insecurity, instability, consequently, poor development outcomes (Klosowicz, 2020). Right after colonial masters left, most countries in sub-Saharan Africa falls in the hands of dictators and military rule over a long period of time, resulted in a number of coups after coups as well civil wars, which devastates the countries, ensued high level of corruptions, embezzlements of resources, extreme poverty, insecurity, higher cost of doing business and underdeveloped economies. Even though some sub-Saharan African countries are consolidating on the key aspect of good governance, many others have the worst indicators of good governance in the world (WGI, 2020). Basically, good governance practice has been found to promote wealth creation, efficient utilisation of resources, control of corruption, political stability and absence of violent crimes (Mbaku, 2020). Earlier studies established link between governance and economic performance, not only in developed countries but also in developing countries (North, 1992). Furthermore, the capability approach to human development as developed by Sen, (1989), considered institutions and GDP growth as just the means of getting an end, which he termed as human development. Even though sound Institution as a device for good governance are not one of the dimensions of human development, are considered as important tools that provide conditions for achieving higher human capabilities, consequently, higher human development (Mardanov, 2020; Naanwaab, 2018; Simplice & Nwachukwu, 2016; Uddin et al., 2020).

The objective of this study is to examine the effect of foreign remittances and good governance on human development in Sub-Saharan African countries. The study employed Fully Modified Ordinary Least Square (FMOLS) and Dynamic Ordinary Least Square (DOLS) to explore the effect of foreign remittances and governance on human development in the long run, with balance panel data of 20 sub-Saharan African countries, covering 1996 to 2019. The countries are selected based on the availability of full data for all the variables choose for this study. Therefore, this study makes two important contributions to the existing empirical works: firstly, it examines the long run relationship between foreign remittances, governance and human development in sub-Saharan Africa. Previous studies focused on developing countries for either the effect of foreign remittances (Huay et al., 2019; Sahoo et al., 2020) or governance (Filippidis & Katrakilidis, 2015; Mira & Hammadache, 2017; Shaikh et al., 2019) on human development; and the few that focused on sub-Saharan Africa used either remittances (Kausar et al., 2019) or governance (Andrés et al., 2017). However, sub-Saharan African countries have unique problems of extreme poverty, unemployment, low production capacity, political instability, mass illiteracy, infrastructural deficits, insurgency among others. Thus, pooling sub-Saharan Africa with other developing countries especially those in south Asia and Pacific, may not provide a true picture, hence, this work focuses on sub-Saharan Africa. Secondly, on the choice of control variables. This work used military expenditures and population growth as the explanatory variables in human development equation. It is obvious that sub-Saharan African countries are facing challenges of terrorism, political instability and boarder conflicts, which takes

away chunk of resources from projects that will better people's life, couple with the population explosion in the region, consequently, lower ranking in HDI.

The reminder of this paper is structured as follows, in section 2 theoretical foundation and previous empirical literatures are presented, in section 3 research methodology and data, while section 4 contained the results and discussions, lastly, conclusion and policy implications presented in section 5.

LITERATURE REVIEWS

Capability Approach to Human Development

Human development involves creating enabling environment for human beings, either individually or in a group, to harness their full potential, freedom and choices to have a productive and decent living they cherished (UNDP, 2019). The human development approach as pioneered by Mahbub Ul Haq and developed by Amartya Sen using human capability approach, put human beings as the drivers and benefactors of economic development. In his work, Sen, (1989) argued that people must be at the centre of all development agenda and consider human beings as the means as well as the ends of economic development; away from the classical approach that portrayed human beings as a means (labour) of getting growth and development. This approach is known as capability approach to human development, which considers economic growth and development as of one of the tools of enlarging people's capability to achieve higher welfare. The capability approach fundamentally revolves around the idea of "capability and functionings", where people have freedom and choice to "do what they want, and be" what they aspire to be in a society. The "capability" relates to advantages, opportunities or freedom that people may have, while "functionings" connotes to the ability of individual or group to convert the capability sets available to them into quality of life. Thus, people with the same capabilities may achieve different functionings in life, due to freedom they have to choose between different options available to them (Robeyns & Byskov, 2020).

Interestingly, capability approach provided a medium of thought through which various issues and policies pertaining welfare can be evaluated, not only in economics, but sociology, political science and philosophy (HDRO, 2016). As a result, capability approach to human development attracted attentions of academia, policymakers and international agencies, which provided the basis of constructing Human Development Index (HDI) by United Nations Development Program (UNDP) in 1990, using three dimensions: knowledge, longevity and decent living, which have direct effect on human development. Thus, according to human development report (1990) the fundamental capabilities for achieving higher human development are access to quality knowledge, leading long and healthy lives and access to income for decent living. However, apart from these three dimensions which directly affect human development, there are other factors that are important to achieving higher human development, which are considered as conditions for enlarging capability sets for higher human development (UNDP, 2019). Robeyns & Byskov, (2020) maintained that financial resources, socio-cultural practices, norms and tradition, socio-economic and political institutions, social arrangements, protection, liberty among others, are the important factor that create enabling conditions for capabilities, thereby promoting human development. Also, Binder (2019) argued that good institutional framework plays important role

for the conversion of available capabilities into higher human development.

The argument by this study is that foreign remittances and governance may serve as factors creating condition for enlarging human capabilities to achieve higher human development. For instance, inflows of remittances to sub-Saharan Africa provided additional income to recipient families that can be used for human capital development, physical capital investments and healthcare services, which have direct positive impact on human development. Moreover, remittances inflow provides exchange earnings thereby reducing exchange rate pressure on the economy, stabilised the economy, improve purchasing power, promote growth and development consequently, higher human development. Basically, quality governance provides an important framework for policymakers to designs policies and programs that deliver essential services to the public, which have direct impact on productivity growth and development (Andrés et al., 2017), hence, better human development. The earlier work by Muro & Tridico, (2008) established that better governance directly or indirectly enhances human capabilities through efficient allocation of resources, thereby promote human development.

Empirical Literatures and Hypothesis Development

This study reviews related empirical studies and formulate hypothesis based the previous studies.

Effect of Foreign Remittance on Human Development

The link between foreign remittances and human development has been explored in the literatures, with the work of Imran, (2018) that examined the relationship between remittances and household human development in Pakistan and reported that remittances inflow promote human development. In another work, Huay et al., (2019) established that remittances have positive and significant effect on human development in developing countries. Also, Kausar et al., (2019) found that remittances promote human development in SSARC countries, while Sahoo et al., (2020) using FMOLS and DOLS methods, reported that remittances inflow promote human development in South Asian countries. In another work, Khraiche & Boudreau, (2020) examined the effect of cost of remittances on human capital development in Africa, and reported that lower cost of sending remittances to Africa will promote human capital accumulation. The work of Sahoo & Sethi, (2020) explored effect of remittances on human development in sub-Saharan Africa, using FMOLS and DOLS methods, the study found that remittances positively affect human development. Moreover, Asongu et al., (2019) found a threshold point at 25% of remittances (%GDP) where the remittances promote human development in sub-Saharan African countries. Furthermore, using one of the dimension of human development, Gyimah-Brempong & Asiedu, (2015) and Azizi, (2018) found that remittance positively affect human capital development. However, remittances also found to promote economic growth (Kadozi, 2019; Matuzeviciute & Butkus, 2016; Meyer & Shera, 2017; Tahir et al., 2015). Hence, based on the above evidences, this study developed the following hypothesis:

H₁: there is significant and positive effect of foreign remittance on human development

Effect of Good Governance on Human Development

The connection between governance, public spending and human development is established empirically by Bhanumurthy et al., (2016) in Pakistan, and result revealed that good governance compliments the positive effect of public spending on human development. In another work, Andrés et al., (2017) estimated the relationship between formal institutions, ICT and inclusive human development in 49 sub-Saharan Africa, using traditional fixed effect and Two-stage least square. The study found that institutional elements positively affect ICT which consequently promote inclusive human development in sub-Saharan African countries. Similarly, Mira & Hammadache, (2017) and Azam, (2016) found that better governance promote growth and development, while the work of Simplice & Nwachukwu, (2016) reported that governance enhances mobile telephone penetrations positive effect on inclusive human development in sub-Saharan Africa. The work of Naanwaab, (2018) found that economic freedom promote higher human development in countries with low human development than in high and very high human development countries. In another study, Asongu & Odhiambo, (2018) found that lower constraints to doing business have positive and significant effect on human development in sub-Saharan Africa. The study of Mardanov, (2020) examined the effect of pollical and economic institutions on human development in transition economies and the world using Two-stage least square instrumental variable method. The results revealed that institutions have weak and significant influence on human development in transitions economies but strong positive influence in the rest of the world. Thus, this study formulates the following hypothesis based on the available empirical evidence reviewed.

H₂: there is significant and positive effect of good governance on human development

The bulk of empirical literatures reviewed revealed positive and significant effect of foreign remittances and governance on human development. Most of the studies are panel in nature, and mostly done in developing countries, south Asia, and Africa, with few studies carried on sub-Saharan Africa, despite the human development challenges of the region.

Conceptual Framework

The study developed its conceptual framework based on capability approach to human development as developed by Sen, (1989) and expanded in Nussbaum, (2000). This approach considers human development to be a function of various capabilities and functionings. Basically, the argument here is that foreign remittance, and good governance influence human development in OIC countries. Thus, figure 1, this study depicts the effect of foreign remittance and good governance on human development. This framework is used to formulate the study model.

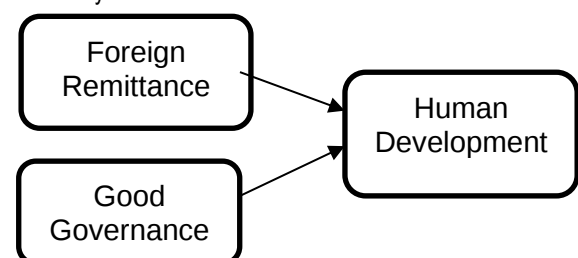


Figure 1: Conceptual Framework

METHODOLOGY AND DATA

The study examined the effect of foreign remittances and governance on human development in sub-Saharan Africa for the period 1996 to 2019. The study estimated a balanced panel of 20 out of 47 sub-Saharan African countries with the available data. The dependent variable is human development, while the variables of interest are foreign remittances and governance. The study employed inflation, financial development, military expenditure and population growth as control variables. In order to explore long run effect of foreign remittance and governance on human development, this work employed Fully Modified Ordinary Least Square (FMOLS) and Dynamic Ordinary Least Square (DOLS) as the appropriate methods that correct endogeneity and serial correlation associated with Ordinary Least Square (OLS) estimator. To estimate the cointegrating coefficients, the study conducted cross section dependency tests, unit root tests and panel cointegration tests, to determine the stationarity nature and long run relationship of the variables.

Data

The variables used in this study are explained here briefly as follows:

Human development (LHDI)

Human development is the dependent variable and is measured by the Human Development Index (HDI), constructed by UNDP. The HDI is constructed with three dimensions: first, knowledge dimension, which is measure by rate of school enrolment and completion; second, longevity dimension, measured by life expectancy at birth; third, decent and standard living, measured by per capita income. Basically, the HDI is considered more comprehensive to measure development than the previously used indicators. For instance, GNP/GDP per capita was criticised that expansion of wealth is just the means because it is not a guarantee of happiness, as income can be used for essentials or harmful goods (HDR, 2020). Even though HDI was criticised for been narrow, it provided a measure of human development better than previously used classical measures (Comim, 2016). The HDI is obtained from UNDP database, published by Human Development Report (HDR, 2020). The index is between 0 and 1, with 1 representing highest level of human development.

Foreign Remittance (LFR)

Foreign remittance is defined in this study as the personal transfers, cash or in kind sent by the migrants' workers to their families, friends and communities. Foreign remittance is measured by personal remittance (%GDP) received. As one of the variables of interest, remittances inflow have been found to promote human development (S. Asongu et al., 2019; Sahoo et al., 2020). Thus, this study examined the long run effect of foreign remittance on human development in sub-Saharan Africa. The data is obtained from world development indicators (World Bank, 2021)

Governance (INC)

Governance as the variable of interest in this study, is defined as the way and manner policymakers designs and implements decisions that will better the lives of people.

Whenever there is effective governance in place, corruption, inefficiency, instability, insecurity, inequality and poverty will be minimised, consequently higher human development (Asongu & Roux, 2016). In this study, governance is measured by control of corruption and rule of law indicators, constructed by World Governance Indicators (WGI, 2020). Control of corruption measures the perception of people on how those in authority exercised political power for personal gains; while rule of law measures the extent of confidence that economic agents have in the laws of the society and how they abide by it. The governance indicators have values between -2.5 to 2.5, with the value of -2.5 means weak governance and 2.5 better governance. The data is obtained from World Governance Indicators, World Bank databank.

Other Independent Variables

This study used inflation as a control variable in order to have clear picture of the effect of the independent variables in this study. Firstly, inflation is use to control for internal shock and is measured by consumer price index (CPI). Inflation is the important macroeconomic variable, as it affects purchasing power, production, employment, savings and investment, thereby, may affect human development (Hemmati et al., 2018). Whenever there is inflation, purchasing power is eroded and people with fixed income negatively affected. Inflation also rises cost of production and cost of living, which aggravate harsh living conditions (Yolanda, 2017). The data were obtained from world development indicators (World Bank, 2020). Moreover, the connection between financial development and growth is established in literatures (Bayar et al., 2018; Puatwoe & Piabuo, 2017), however, the debate now is whether the development in the financial sector has direct effect on human development. The variable financial development is proxy by domestic credit to private sector (%GDP). The increase in credit to private sector will promote activities in the real sector, which have direct impact on growth and development (Bayar et al., 2018), thereby promote human development (Md. Akther & Masih, 2015). Another independent variable, population growth, is an important factor that may influence development outcomes, positively or negatively, depending on the prevailing conditions. Higher population means higher productivity, larger market, and higher growth. Conversely, population growth may exert pressure on resources, lower capital-output ratio, overpopulation, lower human capital development, poverty, hence low human development. Lastly, military expenditure (%GDP) is use as independent variable to examine its effect on human development in sub-Saharan Africa. Due to high level of insecurity and insurgencies in sub-Saharan Africa, a lot of resources are channelled to defence, instead of developmental projects that will better people's life. Thus, this study is among the few to explore military expenditure-human development nexus in sub-Saharan Africa. All the data were obtained from World Development Indicators, (World Bank, 2020)

Methodology

To estimate FMOLS and DOLS, the study data have to be diagnosed for cross section dependency, unit root and panel cointegration. The two methods account for cross

section dependency in the panel, performs better when the variables are I(1) and cointegrated (Tugcu, 2018).

Cross Section Dependency Tests

In any panel data study, testing cross section dependency is imperative to determine the appropriate method for estimation. This study employed three different cross section dependency tests: Breusch and Pagan LM test, Biased-corrected Scale LM test and Pesaran CD test. The Breusch Pagan LM test is efficient with small cross sections, while the Scale biased-corrected LM test can be used for data with large time and cross sections, and Pesaran CD test are the standardised version of Breusch Pagan LM with good small sample properties. Thus, the study employed the three tests due their different power and conclusions. All the tests have null hypothesis of no cross-section dependency, which can be rejected at p-value less than 0.05 (Pesaran, 2015).

Panel Unit Root Tests

The debate on testing panel unit root is still ongoing with some tests based on the assumption that cross sections are cross sectionally independent -first generation panel unit root tests. On the other hand, other tests account for cross section dependence known as second generation panel unit root tests. This study employed two first generation and one second generation panel unit root tests to test the stationarity nature of the variables. The idea of using first and second generations tests is to substantiate the claims of cross section dependence in economic data. The first-generation tests include Levin et al. (2002) based on homogenous unit root process across all the panel, and Im et al., (2003) based on heterogenous unit root process across all the cross sections. However, both the tests can be performed with unbalanced panel data, with null hypothesis of unit root. The second-generation panel unit root test account for cross section dependency in the panel using orthogonal procedures to remove the error dependency in the series, then apply the standardised panel unit root test to the transformed data (Baltagi & Pesaran, 2014). Therefore, this study employed cross-sectionally augmented IPS test better known as CIPS panel unit root test based on single common factor for the cross section. Monte Carlo evidence shows that the CIPS test performed better than the other second-generation unit

root tests like Cross-sectionally ADF test (Pesaran, 2007). The Pesaran CIPS test is based on null hypothesis of unit root process.

Panel Cointegration Tests

Panel cointegration test is performed to determine the long run relationship between variables, which may indicate whether the variables move together in the long run. Different types of panels cointegration tests exist in the literature, based on different specifications. First group, the residual-based tests, such as Pedroni (1999) and Kao (1999) panel cointegration tests; the second group, maximum likelihood-based tests, for instance, Larsson et al. (2001) test; the third group, error correction-based panel cointegration test, such as Westerlund (2007) tests. This study used Pedroni, (1999) and Kao, (1999) panel cointegration test, with null hypothesis of no cointegration in the cross section. These two tests have higher explanatory power and performs better even in small sample (Tugcu, 2018).

FMOLS and DOLS Cointegrating Estimators

The application of the traditional OLS methods to non-stationary economic data was greeted with various problems of autocorrelation, heteroscedasticity and endogeneity effects which may produce bias and inefficient estimators, consequently spurious regression. The search for appropriate technique that will produce less bias and efficient estimator that will perform better than OLS in non-stationary data led to the emergence of Fully Modified Ordinary Least Square (FMOLS) method and Dynamic Ordinary Least Square (DOLS) method. These methods estimate long run equilibrium parameters of variables that are cointegrated, account for endogeneity and serial correlation, thereby producing consistent and efficient parameters (Othman & Masih, 2015; Tugcu, 2018). The FMOLS and DOLS are available in different forms because of continuous development of the methods, but the best of the two methods is the group-mean of Pedroni (2001) that performs better in both heterogenous and homogenous panels data specifications (Derviş et al., 2016). Thus, this study will used FMOLS and DOLS Group-mean estimators to examine the long run effect of foreign remittances and governance on human development in sub-Saharan Africa.

The FMOLS and DOLS estimators as derived by Pedroni (2001) are as follows:

$$\beta_{N,T}' - \beta = \left(\sum_{i=1}^N w_{22,i}^{-2} \sum_{t=1}^T (x_{i,t} - \bar{x}_{i,t})^2 \right) \sum_{i=1}^N w_{11,i}^{-1} w_{22,i}^{-1} \left(\sum_{t=1}^T (x_{i,t} - \bar{x}_{i,t}) \varepsilon_{i,t}' - T_{vi}^* \right) \quad (1)$$

Where,

$$\varepsilon_{i,t}' = \varepsilon_{i,t} - \frac{\hat{w}_{21,i}}{\hat{w}_{22,i}} \Delta x_{i,t}, \hat{v}_i = \hat{y}_{21,i} \hat{\Omega}_{21,i}^0 - \frac{\hat{w}_{21,i}}{\hat{w}_{22,i}} (\hat{y}_{21,i} + \hat{\Omega}_{22,i}^0) \quad (2)$$

The $\hat{w}_i$ is the lowest triangulation of $\hat{\Omega}_i$. The asymptotic distribution of DOLS and FMOLS are the same, and the

estimated parameters are observed to perform efficiently and consistently

Model Specifications

This study developed its empirical model by following the work of Sahoo et al., (2020) that used the following specification to examined remittances-human development nexus. The HDI is used as dependent

$$HDI = f(R, L, F, G, C, H, FD, GS) \quad (3)$$

This study builds on this model, to examine the effect of foreign remittances and governance on human development in sub-Saharan Africa. The model for this study is specified as follows

$$HDI_{i,t} = f(FR, INS, CP, DC, ME, PG)_{i,t} \quad (4)$$

Model 4 differ from model 3 for using governance (INS), military expenditure (ME) and population growth (PG) as additional independent variables. The FMOLS and DOLS model is specified as follows

$$LHDI_{i,t} = \delta_0 + \delta_1 LFR_{i,t} + \delta_2 INS_{i,t} + \delta_3 LCP_{i,t} + \delta_4 LDC_{i,t} + \delta_5 LME_{i,t} + \delta_6 LPG_{i,t} + \mu_t \quad (5)$$

Equation 5 is the FMOLS and DOLS specification, where LHDI is the human development and the dependent

variable, remittances (R) as variable of interest, life expectancy (L), FDI (F), GDP (G), inflation (C), human capital (H), financial development (FD) and government expenditure (GS).

variable, LFR is the foreign remittances and INS is the governance, which are the two variables of interest. The remaining variables are inflation (CP), financial development (DC), military expenditure (ME) and population growth (PG). Moreover, δ_0 stand for intercept, δ_1 to δ_6 are the parameters to be estimated, while t stand for time series dimension and i represent individual cross section. The figure L attached to the variables means they are in natural logarithms form, to take care of size differences and interpretations based on elasticity.

RESULTS AND DISCUSSIONS

The study used data from 20 sub-Saharan African countries with available data, from 1996 to 2019 (24 years) for all variables, with each variable has 480 observations. The results of this study presented in table 1 show that the descriptive statistics of all the variables are within the required range, and none of the variables show any signs of outlier.

Table 1: Descriptive Statistics

Variables	Mean	Median	Maximum	Minimum	Standard Deviation	Skewness	Kurtosis
LHDI	-0.3174	-0.3169	-0.0947	-0.6126	0.0998	-0.3067	3.1780
LFR	0.0683	0.1999	1.3008	-3.0453	0.7149	-1.0514	4.6504
INC	-0.4838	-0.5542	1.2167	-1.5851	0.6647	0.5923	2.6298
INR	-0.4678	-0.5194	1.0771	-1.8023	0.6586	0.3977	2.4457
LCP	1.9329	1.9492	3.1285	1.0102	0.2225	-0.0937	6.9395
LDC	1.1893	1.1533	2.2045	-0.3951	0.4027	0.2179	3.9736
LME	0.0772	0.1172	0.8441	-0.8369	0.3265	-0.4469	3.7405
LPG	0.3521	0.4170	0.5919	-1.4916	0.2434	-3.9187	22.5843

Source: Author's results.

In table 2 the study presents the results of three cross-section dependency tests. The results of Breusch-Pagan LM test, Bias-Corrected Scaled LM test and Pesaran CD test failed to accept the null hypothesis of no cross-section

dependency for all the variables except for military expenditure (ME), which failed to reject the null in Pesaran CD test. Thus, the cross-section dependency tests show that all the variables exhibit cross-sectional dependency

Table 2: Cross-Section Dependency Tests

Variables	Breusch-Pagan LM Test	Bias-Corrected Scaled LM Test	Pesaran CD Test
LHDI	3251.84*** (0.0000)	157.07*** (0.0000)	54.57*** (0.0000)
LFR	1045.03*** (0.0000)	43.4272*** (0.0000)	3.7637*** (0.0002)
INC	765.26*** (0.0000)	29.51*** (0.0000)	-0.3856*** (0.6998)

INR	1056.41*** (0.0000)	44.0112*** (0.0000)	-11.1231** (0.0114)
LCP	4327.86*** (0.0000)	211.83*** (0.0000)	65.76*** (0.0000)
LDC	2052.83*** (0.0000)	95.17*** (0.0000)	42.09*** (0.0000)
LPG	1655.97*** (0.0000)	74.77*** (0.0000)	17.1286** (0.0021)
LME	819.08*** (0.0000)	31.84*** (0.0000)	-0.4045 (0.6859)

***&** stand for 1% &5% level of significance, and the values in parenthesis are the p-value
Source: Author's results

Table 3: Panel Unit Root Tests

Variables	Levin, Lin & Chu		IPS		CIPS	
	Level	1 st Diff	Level	1 st Diff	Level	1 st Diff
LHDI	-2.391 (0.992)	-9.123*** (0.000)	-1.085 (0.139)	-8.619*** (0.000)	-1.584 (-2.720)	-4.051** (-2.720)
LFR	-0.174 (0.431)	-14.983*** (0.000)	-1.675 (0.786)	-15.659*** (0.000)	-2.578 (-2.720)	-4.371** (2.720)
LIN	-2.484 (0.987)	-13.404*** (0.006)	-3.79*** (0.000)	-13.484*** (0.000)	-2.557 (-2.720)	-4.915** (-2.72)
LCP	0.752 (1.892)	-12.604*** (0.000)	-1.171 (0.879)	-10.985*** (0.000)	-2.210 (-2.720)	-4.706** (-2.720)
LDC	-1.033 (0.151)	-16.583*** (0.000)	-1.725 (0.072)	-16.174*** (0.000)	-2.471 (-2.720)	-5.215** (-2.720)
LPG	0.014 (0.506)	-9.646*** (0.000)	-1.602 (0.055)	-11.849*** (0.000)	-2.061 (-2.720)	-4.103*** (-2.720)
LME	-2.859 (0.285)	-15.609*** (0.000)	-2.857 (0.415)	-14.839*** (0.000)	-2.420 (-2.720)	-4.900** (-2.720)

***&** stand for 1% &5% level of significance, and the values in parenthesis are the p-value.

Source: Author's results

The results presented in table 3 were obtained from the two first generation panel unit root tests based on Levin et al., (2002) and Im et al., (2003) unit root tests; and one second generation test based on Pesaran, (2007). The results

failed to reject the null hypothesis of unit root at level, and failed to accept the null of unit root at first difference. Overall, the results indicated that all the variables are stationary at first difference I(1).

Table 4: Panel Cointegration Test

Pedroni Residual Cointegration Test				
Test	Within Dimension		Between Dimension	
	Statistic	Weighted Statistics	Test	Statistics
Panel V-Statistic	5.2365*** (0.0000)	8.6189*** (0.0000)	Group rho-Statistics	5.9589 (1.0000)

Panel rho-Statistic	4.2719 (1.0000)	4.9807 (1.0000)	Group PP- Statistics	-2.2825** (0.0112)
Panel PP-Statistic	-2.8889** (0.0019)	-0.1974 (0.4218)	Group ADF- Statistics	-2.513** (0.0060)
Panel ADF-Statistic	-4.0309*** (0.0000)	-0.7502 (0.2266)		
Kao Residual Cointegration Test				
Test	Statistics			
ADF	-2.6698** (0.0038)			
Residual Variance	0.00012			
HAC Variance	0.00019			

***&** stand for 1% &5% level of significance, and the values in parenthesis are the p-value.

Source: Author's results

In table 4, the results of Pedroni and Kao panel cointegration tests show that, the null hypothesis of no cointegration is rejected in 6 out of 11 tests statistics of Pedroni panel cointegration. This show that the majority of the statistics confirmed the cointegration relationship among the study variables. Moreover, the results of Kao panel cointegration test also failed to accept the null of no cointegration at 5% level. Therefore, the two panel cointegration tests confirmed that the study variable are cointegrated, which revealed that they all the variables have long run relationship, hence, they move together in the long run.

In table 5, model 1-2 were estimated with FMOLS method, while model 3-4 were estimated with DOLS method. In model 1and 3, the study used control of corruption (INC) as proxy of governance, while in model 2 to 4, the study used rule of law (INR) as a proxy for governance. The results of FMOLS (1-2) show that foreign remittances (LFR) are positive and statistically significant at 1% and 5% level of significance in model 1-2. The results also show that, governance has positive but insignificant effect on human development in model 1 when INC was used,

and positive and statistically significant at 5% in model 2 when INR was used. The remaining variables, inflation (LCP), military expenditure (LME) and population growth (LPG) found to have negative and statistically significant effect on human development at 1% in model 1-2, while financial development (LDC) shows positive and significant coefficient at 1% level of significance in model 1-2. However, the results of DOLS revealed that LFR found to have positive and statistically significant coefficient at 5% in model 3, while positive and insignificant in model 4. Moreover, variables INC and INR have positive and significant coefficients at 1% in model 3 and 4. Furthermore, the remaining independent variables, LCP and LPG shows negative and significant coefficients in model 3 and 4, while LDC show positive and significant coefficient in model 3 but positive and insignificant coefficient in model 4. The variable LME revealed negative and significant coefficient in model 3, but insignificant coefficient in model 4. The results of Jarque-Bera Statistics show that model 2 and 3 estimated with FMOLS and DOLS failed to reject the null of stability while model 1 and 4 are significant at 10%. Thus, model 2-3 are more stable than model 1and 4.

Table 5: Results of Cointegrating Parameters

Variables	FMOLS		DOLS	
	Model 1	Model 2	Model 3	Model 4
LFR	0.0258*** (0.0056)	0.0112** (0.0058)	0.0426** (0.0194)	0.0061 (0.0088)
INC	0.0057 (0.0077)		0.0782*** (0.0115)	
INR		-0.0142** (0.0068)		0.0908*** (0.0142)
LCP	-0.1262*** (0.0239)	-0.0698*** (0.0205)	-0.0556** (0.0166)	-0.0727*** (0.0187)
LDC	0.1123*** (0.0119)	0.1115*** (0.0109)	0.0591** (0.0222)	0.0046 (0.0226)
LME	-0.0379*** (0.0114)	-0.0362*** (0.0113)	-0.0261 (0.0346)	0.0819** (0.0378)
LPG	-0.4915*** (0.0828)	-0.5802*** (0.0714)	-0.16789*** (0.0357)	-0.2613*** (0.0569)
Number of Obs.	459	460	419	420
Adjusted R-squared	-0.6263	-2.1588	0.8104	0.8219
Jarque-Bera Statistics	19.417 (0.0824)	15.101 (1.0036)	17.101 (0.5038)	15.166 (0.0585)

***&** stand for 1% &5% level of significance, and the values in parenthesis contains standard errors.

Source: Author's results

The results of the three cross section dependency tests revealed the evidence of cross-section dependency among the variables, hence, applying FMOLS and DOLS methods will produced valid long run estimators, as the two methods accounts for cross-section dependency in the panel. Moreover, the results of the three different panel unit root show that all the variables are I(1) which indicates possibility of cointegration, hence, paved the way for cointegration test estimation. Also, the cointegration tests results confirmed the existence of long run relationship among all the variables, which fulfilled condition for using FMOLS and DOLS methods. The results of FMOLS and DOLS revealed that foreign remittances (LFR) promote human development in sub-Saharan Africa. This result is consistent with the findings of Sahoo et al., (2020); Sahoo & Sethi, (2020) and Huay et al., (2019). The long run positive and significant coefficients obtained in 3 out of the 4 models shows that, in the long run, an increase in the foreign remittances to sub-Saharan Africa, will promote human development in the region. The result also confirmed the argument that, remittances form an important part of the recipients families income for consumption, human and physical capital investments (Rapoport & Docquier, 2005), also, remittance recipient household have better welfare than none remittance recipient household (Gyimah-Brempong & Asiedu, 2015).

The positive long run coefficients of governance obtained in 3 out of the 4 models in table 5 means that, in the long

run, improve in quality governance is associated with the increase in human development in sub-Saharan Africa. Whenever corruption is controlled and the practice of rule of law increase, mismanagement will be curtailed, people will have high confidence in governance, which will promote economic activities, reduces transaction cost, promote social harmony, better living standard, consequently promote human development. The findings are consistent with the findings of Bhanumurthy et al., (2016); Hashem, (2019); Simplice & Nwachukwu, (2016). Moreover, the findings also confirmed that argument that good institutional framework which directly or indirectly provide good conditions that promote human capabilities to achieve higher human development (Robeyns & Byskov, 2020). In addition, the results also revealed that in the long run, inflation (LCP) and population growth have inverse relationship with human development. Inflation has been argued to reduce purchasing power, increases cost of production and distribution, thereby negatively affect human development. This result is consistent with Yolanda, (2017) Gillman et al., (2019). However, the negative long run coefficients of population growth (LPG) means that, sub-Saharan African countries have huge resource shortages for development, thus, increasing population may exert high pressure on the scarce resources, which may increase poverty, hunger, unemployment and income inequality.

Furthermore, the results also indicated that lower military expenditure (LME) promote long run human development in sub-Saharan Africa. The explanation of this result is that countries in sub-Saharan Africa faced with various security challenges, which increases hence military expenditures with poor outcome. Thus, these countries should exploit other means for instance, reduces the military expenditure and invest in human capital development, agricultural development, healthcare services, which may promote food security, literacy level, healthy population, consequently, reduces the insecurity challenges, and promote human development. Nonetheless, the long run positive coefficients of financial development mean that increase domestic credit to private sector will boost economic activities, which in the long run, increases the level of employments, income, growth, and human development.

CONCLUSION AND POLICY IMPLICATIONS

Conclusion

This work examined the effect of foreign remittances and governance on human development in 20 sub-Saharan Africa with available data, from 1996 to 2019, using FMOLS and DOLS methods. Based on the findings, the study established that all the variables are I(1), have cross sectional dependency and cointegrated, hence, feasible for FMOLS and DOLS methods. Based on the parameters obtained from FMOLS and DOLS models, it was established by this study that foreign remittances and governance are important long run determinants of human development in sub-Saharan Africa. Thus, foreign remittances and governance promote long run human development in sub-Saharan African countries. The results of other independent variables demonstrated that lower inflation, lower military expenditure, lower population growth and increase in financial development promote human development in the long run.

Policy Implications

This study established that remittances inflow to sub-Saharan Africa promote human development in the long run. Therefore, these findings confirmed the argument that remittances inflow compliment economic growth in many low- and middle-income countries, as it made funds available for various forms of investment in the countries considered to have disadvantage of attracting foreign investments due to high cost of doing business and insecurity. Hence, policymakers at sub-Saharan African countries should devise policies that will encourage diasporas people to send in money from their host countries through official channel, thereby enhancing the positive effect of remittances on human development in sub-Saharan Africa. Moreover, the stumbling constraint of sending remittances through official channel is the cost of sending remittances, especially from developed to developing countries of sub-Saharan Africa, due to financial crimes, terrorism, and inefficient financial sector. To reduce the cost of sending remittances, policymakers in the sub-Saharan African corridors, should devise programs that will enlighten the senders to choose the competitive means of sending remittances that provide cheaper rates, for instance, using mobile money is cheaper than using commercial banks to send remittances. Thus, access to mobile money should be expanded in the region, which will increase the remittances inflow and promote higher human development. Furthermore, this work also established that better governance promotes long run human development

in sub-Saharan Africa. However, in order to promote human development, it is imperative for policymakers in sub-Saharan Africa to develop and maintain trustworthy institutional arrangement that provide effective and efficient legal and regulatory framework that will promote efficient allocation of productive resources, social and political stability, curb financial malpractices and ensure equitable distribution of opportunities.

Importantly, future works should explore more in this area especially impact of migrants' workers on human development of their host countries. This will provide a clear picture that migrants workers not only influence economic conditions of their home country, but also their host countries.

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