EFFECT OF REMITTANCES ON ECONOMIC GROWTH IN SUB-SAHARAN AFRICAN COUNTRIES: A DYNAMIC PANEL APPROACH (1980-2015)

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A Thesis Submitted to the Graduate School in Partial Fulfillment for the Requirements for the Award of Master of Arts Degree in Economics of Egerton University

EGERTON UNIVERSITY

MAY, 2018

DECLARATION AND RECOMMENDATION

Declaration

This thesis is my original work and to the best of my knowledge has not been presented for the award of a degree, diploma or certificate in this or any other University.

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Recommendation

This thesis has been submitted for examination with our approval as University Supervisors.

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DEDICATION

I humbly and most respectfully dedicate this thesis to my parents, Lawrence Kingi and Rachael Pendo whose love, care, understanding and encouragement have made me the person I am today.

ACKNOWLEDGEMENT

ABSTRACT

Remittance flows in Sub-Saharan Africa have increased for the past two decades. However; empirical literature fails to reach a consensus on the impact of remittances on economic growth, with many studies using aggregate data that suffers from aggregation bias. Given that there are different categories of remittances resulting from varying patterns of remitting, there was a need to specifically the effect of each component of remittances on economic growth. This will help in optimal resource allocation and formation of appropriate, efficient and unambiguous policies. This study therefore assessed the effect of remittances on economic growth on SSA countries spanning from 1980 to 2015 by specifically examining the effect of employees' compensation remittances on economic growth, the effect workers remittances on economic growth and effect of profit remittances on economic growth using disaggregated data. The study was based on neoclassical framework for economic growth since it emphasizes on the need for saving to influence positive change in capital stock. A historical research design was employed. Secondary data was obtained from World Bank data base, Econstats and IMF. The model was estimated using System GMM estimation technique for dynamic panel. Compensation of employees' remittances has a positive significant effect on economic growth but the contribution is relatively higher as compared to worker remittances. This may imply that temporary migrants remit with an obligation to support their families in their home countries. The results also revealed that workers remittances have a significant positive effect on economic growth. This implies that workers remittances are a vital source of income for many households in SSA countries. Profit remittances have a positive and significant effect on economic growth, suggesting the important role of remittances outflow through foreign direct investment in SSA economic growth. Therefore, this research is beneficial to researchers in adding to the existing body of knowledge. From the findings on compensation of employees' remittances, policy makers are advised to redirected compensation of employee remittances towards productive projects including strengthening the infrastructure. The findings on workers remittances suggest that policy makers to formulate appropriate policies so as to stimulate additional workers remittances and efficient use of workers remittances. The findings on profit remittances suggest that a good environment for foreign investors be created through infrastructural development.

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LIST OF ABBREVIATIONS AND ACRONYMS

BOP	Balance of Payment
EAP	East Asia and Pacific
ECA	Eastern Europe and Central Asia
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GMG	Global Migration Group
IMF	International Monetary Fund
LAC	Latin America and Caribbean
LM	Lagrange Multiplier
M	Million
MDGs	Millennium Development Goals
MENA	Middle East and Northern America
NELM	New Economics of Labor Migration
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PRSP	Poverty Reduction Strategy Paper
R&D	Research and Development
SA	South Asia
SAR	Spatial Auto Regressive
SDGs	Sustainable Development Goals
SEC	Spatial Error Component
SGMM	System Generalized Method of Moments
SMA	Spatial Moving Average
SSA	Sub Saharan Africa
SUR	Seemingly Unrelated Regression
UNCTAD	United Nations Conferences on Trade and Development
USD	United States Dollar
WB	World Bank
WDI	World Development Indicator

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Many developing countries are still undiversified since they depend largely on few sources of economic growth and thus face major constraints towards sustainable growth. This has made economists for long to debate about sources of economic growth for developing countries ranging from labor (classical), physical capital, foreign aid, technological change and Foreign Direct Investment (FDI), human capital and Research and Development (R&D) (Romer, 2012; Bett, 2014; Simwaka, 2014).

Economic growth in developing countries has experienced fluctuating trends. Although these countries have reported an improvement, not all regions have made significant progress. Figure 1.1 below shows regional comparison of the growth trends with Sub-Saharan Africa (SSA), Latin America and Caribbean (LAC) and Middle East and North America (MENA) slightly lagging behind.
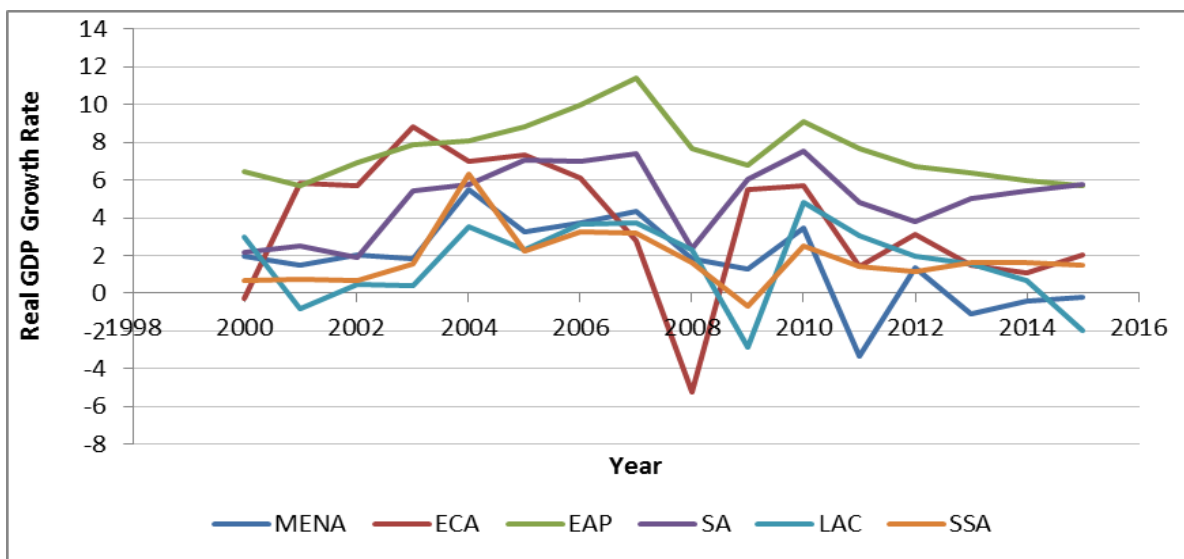
 Figure 1.1: Trends in Economic Growth Regional Comparison

  Source: World Bank Development Indicator (WDI)

The slow progress in economic growth of SSA may be linked to the problem of resource gap that is more pronounced than in other regions of the world. Resource gap refers to a situation where there is gap in domestic savings and foreign savings. According to (Okudua, 2012) successful industrialization and growth are underpinned by rising saving rates, investment and exports.

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UNCTAD (2001) poses that though African countries have experienced surges in investment and growth in the past; they have not been able to establish a virtuous circle of investment, savings and exports. SSA has low domestic savings to finance capital investment, saving at 17.51% of the Gross Domestic Product (GDP) as compared to 45 % in East Asia and Pacific and 35% in South Asia in 2014 according to (WDI, 2014).

Shortages of foreign exchange in addition, hinder consistent finance of imports of consumer goods and services. The region exported 29.58% of GDP in goods and services that is equivalent to 5.0 Billion USD and in return imported 32.37%, 4.8 Billion United Nations Dollar (USD) according to WDI (2014). As a result the region cannot cater for its Balance of Payment (BOP) requirement through foreign exchange due to current account deficit.

SSA current account deficit grew from 2.6% in 2014 to 3.2% in 2015 with more than 15 countries having a deficit in excess of 10% of GDP (Hutchinsun, 2015). A stable remittances inflow therefore, can fill this gap since remittance are sources of foreign exchange and raise income and savings above the level constrained by export earnings.

The international financial organizations including World Bank (WB) and International Monetary Fund (IMF) and African International Migration recognize remittances as an important source of development finance (Straubhaar and Vadean, 2005; Oucho, 2008). Remittances flows can positively influence economic growth by augmenting savings and investment in health and education as well as their effect on aggregated demand and output through consumption (Karagoz, 2009; Okudua, 2012; Ratha, 2013; Lubambu 2014). In addition, by increasing foreign exchange reserves of the recipient country, they reduce current account deficit thus improve BOP position. Consequently they improve a country's credit worthiness as well as reducing dependence on external borrowing, (Abdus and Zafar, 2005; Karagoz , 2009; Javid *et al*., 2012; Simwaka, 2014).

The emergence of Poverty Reduction Strategy Paper (PRSP) in 1990 and Millennium Development Goals (MDGs) in 2000 increased interest on the linkages between remittances and economic growth through poverty eradication in Africa (Oucho, 2008). More (2005) posits that remittances are gifts without a counter flow and therefore the best means of achieving the MDGs in particular poverty reduction and improving human capital. The MDGs have been replaced by the Sustainable Development Goals (SDGs) whose deadline is 2030 with the aim of fighting the crucial constraints to the development in SSA that include low capital formation stemming from low savings due to vicious circle of poverty.

The United Nations and a high panel of experts has recognized financing resulting from alternative sources combined with local resources as the core in the achievement of SGDs (UNDP, 2011). Remittances can be used to finance budget deficits in most developing countries in the current environment of a severe crisis of confidence in debts markets. This is crucial especially in developing countries where they experience difficulties in obtaining private financing by the traditional financial instruments. In such situations, diaspora bond can be issued to enable the state borrow funds from its expatriate communities thus bridge the short term and long term financial gaps. This will enhance long-term growth and employment generation in SSA which has limited access to capital. Diaspora bonds are, therefore, stable and cheap source of external finance for countries especial in times of financial stress (UNDP, 2011; Lubambu, 2014).

Remittance inflows to developing countries have increased over the past two decades. The World Bank estimated USD 420 billion in global remittances in 2009, this included USD 316 billion to developing countries, down from USD 336 billion in 2008 (OECD and GMG, 2010). Figure 1.2 shows the growth in remittances from 1980 to 2011 for the six regions.
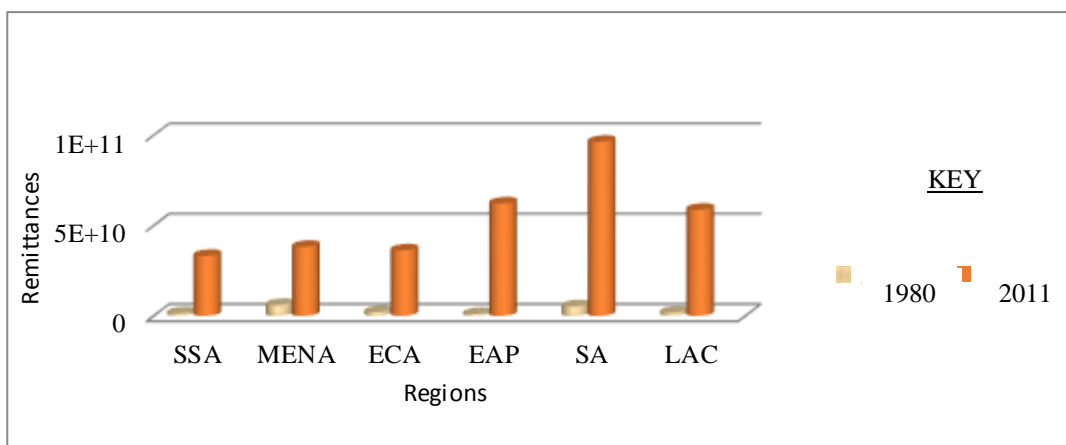
Figure 1.2: Growth in Remittances Regional Comparison
Source: WDI

In 2010, migrants from developing countries sent more than USD 325 billion to their countries of origin, far exceeding the official development assistance (ODA) received, (Kutsushi *et al*., 2012). Though Sub-Saharan Africa is one of the few regions in the world where ODA is larger than remittances (OECD and GMG, 2010) these inflows are much more stable during economic down turns and financial crisis than either foreign direct investment or private financing flows, (Karagoz, 2009). In addition, remittances are persistent and not

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costly thus considered as a steadily growing source of external capital for developing countries. In SSA where dependence on international capital flows is the main source of finance, remittances can contribute to poverty reduction in (Riley, 2011).

In 2012, remittances to Sub-Saharan Africa grew by 3.5 percent reaching USD 32 Billion in 2013. Remittances inflows are projected to amount to USD 41 billion in 2016. Nigeria is the largest recipient of remittances, with migrants sending about USD 21 billion in 2013. In East Africa, remittances grew robustly in 2014, by 10 percent to Kenya and 15 percent to Uganda. In contrast, countries form West Africa, such as Cote d'Ivoire and Senegal, saw only modest increases in 2013, after a slowdown in 2012 (OECD and GMG, 2010).

On the other hand as FDI inflows have increased, outflows in form of profit remittances that are repatriated to the country of origin have also grown substantially. In SSA profit remittances on existing investment exceeded the inflows of net FDI. For Burundi, Cameron, and Kenya, profit remittances are a net drain on resources ("Re-Define,''n.d.). The Figure below shows the trends in economic growth and remittances for SSA.
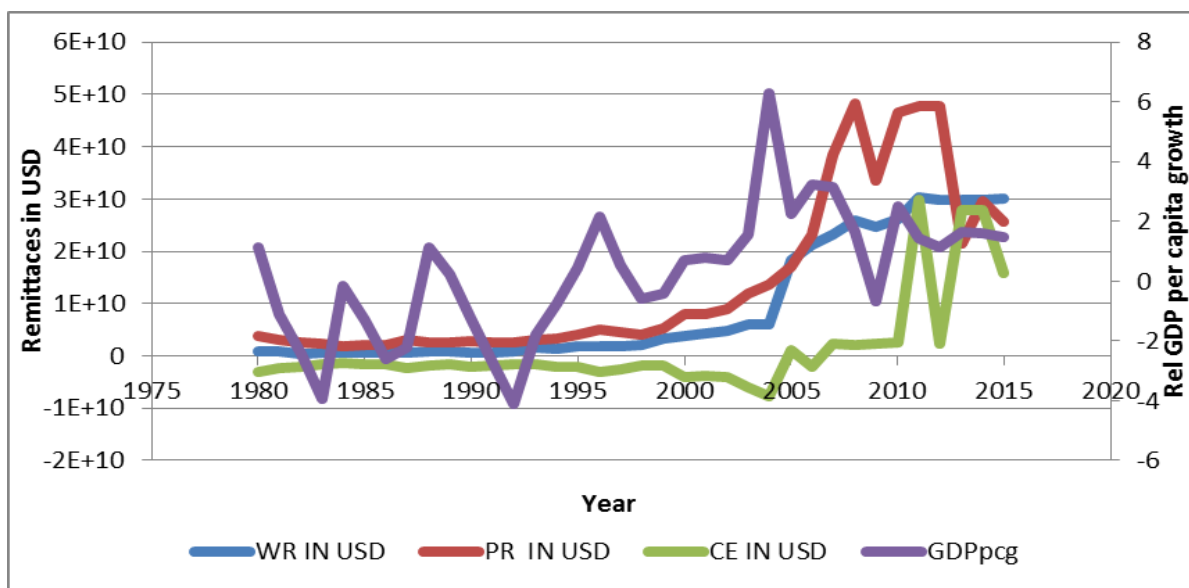
Figure 1.3: Trends in Growth and Diaspora Remittances in SSA.
Source: Calculated using WDI and EconStats.com Data.

Figure 1.3 shows compensation of employees (CE) increased at a slow rate up to 2000, declined in 2011 and increased thereafter. Workers remittances (WR) shows' increasing trends with a decline experienced between 2008 and 2010. On the other hand, profit remittances (PR) have been showing increasing trends except for 2008 and 2009. Economic

growth has been fluctuating being highest in 2004 and in 2006 reached negative, however a slow increase has been experienced since 2010.

In rank order the recipients of remittances in terms of GD for an average of 5 years from 2009 to 2013 is illustrated in Appendix I. Lesotho, Liberia and Comoros, have an average of more than 10%, Gambia, Cape Verde, Togo, Mali, Senegal and Nigeria (with more than 5 %), the remaining countries have an average of less than 5%.

However, little effort has been put to analyze economic impact of these financial transfers, especially on economic growth in Sub-Saharan Africa based on all the three components. These include employee compensation remittances, workers remittances and profit remittances. Many studies focus only on either workers remittances or use of aggregated data on remittances. Compensation of employees remittances include short-term remittances obtained from migrants who have stayed for less than one year. On the other hand, workers remittances represent the remittance inflows originating from permanent residents which have stayed for one year and above, thus they are long-term. Profit remittances are a form of capital flight through repatriation of profits by the multinational corporations. These three categories possess different features thus need to be analyzed separately.

Thus, as the countries go through economic transformation and trappings of globalization, the beneficial impact of remittances on economic growth need to be carefully harnessed for greater development. This will facilitate the achievement of sustainable development goals as outlined in the international blue print. The United Nations is cognizant of the vital role of alternative financing sources in boasting investment essential for sustained economic growth. In countries where investment opportunities hardly exist, remittances are targeted to lift households out of the poverty den in which majority of households are entrapped (Ratha, 2013). Therefore this study is crucial in revealing important information on the relationship between remittances and economic growth in Sub Saharan Africa.

1.2 Statement of the Problem

Sub-Saharan Africa economies are in the first stages of meeting the Sustainable Development Goals (SDGs), thus it is crucial that the region achieves faster and better quality economic growth. Economic growth is essential since it enables increase in resources that are crucial for public services like education and health care. This enables improvements in living standards that contribute to meaningful and sustained reduction in poverty. Economic growth reduces budget deficits as well as lowers the unemployment rates since revenue generated

from growth is invested to create more employment opportunities. However, the region has experienced staggering economic growth as shown in Figure 1.3, with the slowest growth since 1998 experienced in 2015 (Beegle *et al.,* 2016). According to the IMF (2015), the region's real GDP growth rate fell from 5.0 percent in 2014 to 3.75 percent in 2015. Should this slow growth persist then it will pose challenges to the path of successively achieving these goals. A significant number of empirical works on economic growth have mainly focused on foreign aid, FDI, human capital, investment and institutional factors but there exist a few studies on the effect of remittances on economic growth in Sub Saharan Africa. However, the existing empirical literature on the effect of remittances on economic growth has shown conflicting results, with many studies only focusing on either workers remittances or using aggregate measure of remittances and ignoring the effect of each component of remittances such as employees' compensation and profit remittances on economic growth. Individual components of remittances help reveal how each specific component of remittances affect economic growth. This is essential in optimal allocation of resources since the specific parameters on each component of remittances may be different. Evaluating the effect of each component will reveal the components that contribute more to economic growth, therefore, guiding the policy makers on which component of remittances to pay more attention to in making policies that promote remittances so as to resolve the resource gap problem. Given that the other two categories of remittances as shown in Figure 1.3 have also been on the increase as a result the massive migration experienced in the past two decades; the effect of remittances on economic growth in the Sub Saharan Africa need to be examined considering the impact of the three components of remittances separately on economic growth.

1.3 Objectives

1.3.1 General Objective

To investigate the effect of remittances on economic growth of Sub-Saharan African countries

1.3.2 Specific Objectives

i. To examine the effect of employees' compensation remittances on economic growth in Sub-Saharan African countries.

ii. To determine the effect of workers remittances on economic growth in Sub-Saharan Africa.

iii. To explore the effect of profit remittances on economic growth in Sub-Saharan Africa.

1.4 Hypotheses

i. Employees' compensation remittances do not significantly affect economic growth in Sub-Saharan Africa.

ii. Workers remittances have no significant effect on economic growth in Sub-Saharan Africa.

iii. Profit remittances do not have significant effect on economic growth in Sub-Saharan Africa.

1.5 Significance of the Study

This study is important in that policy makers are advised to do more to maximize the positive impact of remittances by putting sufficient incentives and mechanisms for the recipients to invest remittances in capital accumulating projects that are beneficial to the whole region.

There are few studies on effect of remittances on economic growth based on the different categories of remittances. Therefore, this study has contributed to the extension of the existing body of knowledge thus researchers will have more empirical literature available for future studies. In addition the study has suggested future areas of study to robustly enrich the empirical literature on remittance and economic growth. International lending institutions including World Bank and IMF can also benefit for instance, in 2009 the World Bank revised its policy on debt levels of risk to include remittances such that countries with high remittances flows can get more credit this will also benefit individual nations as they will have more credit available for development.

The information is important to individual countries in offsetting the country budget deficit through adopting policies that will enable the use of diaspora bond to finance budget deficits, current account, and stabilizing their exchange rate.

1.6 Scope and Limitation of the Study

The study is limited to the effect of remittances to economic growth Sub Saharan African countries covering the period 1980 to 2015. Sub Saharan African region was chosen since the problem of resource gap is more pronounced in SSA than in any other region. The period was chosen since it is during this period that these countries started focusing on growth, as a result of introduction of SAPs that have been today been replaced by PRSP. SAPs as well as

Poverty Reduction and Strategy Paper (PRSP) encourage labor markets to be flexible thus mobility in the labor market. The period was also chosen due to data availability. A list of 36 countries was selected for analysis as shown on Annex B of the appendices. The countries were chosen due to data availability and over the past decades. In addition they currently accounted for bulk of total remittances flows in Sub Saharan African region.

1.7 Definition of Terms

Autocorrelation – the degree of similarity between a given time series and a lagged version of itself over successive time intervals

Cointegration - linear combination of two series integrated of the same order.

Cross Sectional Dependence - interdependence between error terms of different cross sectional units.

Diaspora Bond – a debt instrument issued by a country, sub country entity or private entity to raise financing from its overseas diaspora.

Disaggregated Data - data that has been separated into its component parts.

Economic Growth - a sustained increase in per capita national output over a long period usually one year

Employees' Compensation - gross earnings of workers residing abroad for less than 12 months, they are seasonal and short-term income remitted across the border by workers who are employed in an economy where they are not residents.

Heteroskedasticity – a situation where the variance of the errror term is not constant

Human Capital - the abilities, skills and knowledge of any individual acquire through investment in education and training that enhance income earning.

Panel Data - cross sectional time series data set where the behaviors of entities are observed across time.

Physical Investment - spending on fixed assets such as factories, machinery, equipment, dwellings and inventories of raw materials which provide the basis for future production. It is measured gross of depreciation of assets.

Profit Remittances - covers payments of direct investment income, which consist of income on equity (dividends, branch profits, and reinvested earnings) and income on the intercompany debt (interest) from FDI.

Remittance - transfer of income by a foreign worker to his home country. It consists of inflows and outflows. Inflows refer to movement of income to the home country through

workers remittances and compensation of employees. On the other hand outflows refer to the money transferred out of the home country through profit remittances from FDI.

Resource gap – amount of foreign savings, it is the level of investment minus domestic savings.

Sub-Saharan African Countries - United Nations, classifies all the African countries that are fully or partially located to the south of Sahara to be part of SSA but excludes Sudan.

Workers Remittances – value of monetary transfer sent home from workers residing abroad for more than one year either in cash or in kind.

<div align="center">**CHAPTER TWO**</div>

<div align="center">**LITERATURE REVIEW AND THEORETICAL FRAMEWORK**</div>

2.1 Introduction

This chapter covers reviews of theoretical literature and empirical literature. Theoretical framework and conceptual framework are also discussed. Theoretical literature review covers theories related to economic growth and remittances. It highlights comparison and controversies by different scholars. Empirical literature review, explains what previous studies covered on the effects of remittances on economic growth as well as the methodology and the theories they used. Theoretical framework gives the model used in the study while conceptual framework gives a representation of the relationship between dependent, independent and intervening variables.

2.2 Theoretical Literature

The section covers economic growth theories and theories related to remittances. Controversies and comparisons by several proponents of these theories are also highlighted.

2.2.1 Harrod-Domar Model of Economic Growth(1939 and 1946)

This model considers capital accumulation a key factor in the process of economic growth as it generates income and increases production capacity of the economy. The new demand created must be adequate enough to absorb the output generated by increase in capital stock or else there will be excess or idle production capacity. This condition should be fulfilled year after year to maintain full employment and to achieve steady economic growth in the long run. This is the central theme of Harrod-Domar growth model. According to Harrod-Domar model, economic growth can be achieved either by increasing marginal propensity to save and increasing simultaneously the stock of capital or by increasing Output-capital ratio. When MPS increases, overall savings increase. The savings which translate into investment increases income and production capacity of the nation.

The production function in H-D model is given by:

$$Y = \frac{1}{v} K \qquad\qquad (2.1)$$

Since v is constant and output is proportional to capital input K/Y is constant

Let $v = K/Y$ (capital output ratio)

$$\therefore \quad \Delta Y = \Delta K \Big/ v \qquad\qquad (2.2)$$

This means output growth equals exactly the capital growth.

By definition net change of capital input (ΔK) equals gross investment (I) minus capital depreciation (dK), $d - depreaciation\ rate$ thus:-

$$\Delta K = I - dK \qquad\qquad (2.3)$$

Since all savings eventually finds its way to investment, then

$$S = I \qquad\qquad (2.4)$$

Assuming savings is a fixed proportion of output:-

$$S = sY \qquad\qquad (2.5)$$

Plugging these two equations into equation (2.6)

$$\Delta K = I - dK = sY - dK = sY - dvY = (s - dv)Y \qquad\qquad (2.6)$$

To get growth rate of output $g,$ combine 2.3 and 2.6

$$g = \frac{\Delta Y}{Y} = \frac{\Delta K}{K} = \frac{\Delta K}{vY} \qquad\qquad (2.7)$$

$$g = \frac{(s - dv)Y}{vY} = \frac{s}{v} - d \qquad\qquad (2.8)$$

GDP growth will be proportional to the share of investment spending in GDP; if without saving capital will come from foreign aid (or sovereign debt). Since v and d are constant; s is the only variable that can be changed. However this model do not allow for substitution of factors of production.

2.2.2 Classical or Developmentalist Theory (1950s and 1960s)

The classical theory states that large scale capital transfer and industrialization to poor countries will enhance rapid economic development and modernization. Migration leads to a North-South transfer of investment capital and accelerates the exposure of traditional communities to liberal, rational and democratic ideas, modern knowledge and education. Thus developing countries started to actively encourage emigration as it was considered an instrument to the promotion of national development since migrants are seen as agents of change, innovation and investment (Ellerman, 2005; De Haas, 2010).

2.2.3 Neoclassical Theory of Remittances

The neoclassical theory of remittances is traced back to the classical economics that recognize that factors of production move from environments where marginal productivity of labour is low to where productivity is the highest. This theory came as a result of contributions of several authors including Harris, Todaro, Borjas and Corry in the late 1990s (Constant and Massey, 2002). Accordingly, individuals take advantage of the benefits of economics differential between countries. Real wage differential between countries give rise to migration and then remittances

Migration therefore flows from low wage and labour abundant countries to high wage and labour scarce countries and consequently remittances flow from high wage and labour scarce countries to low wage and labour abundant countries. However this theory has been criticized to equate migrants to remittances with no consideration for family members. It also assumes that migrants originate from poor countries and have moved permanently. On the other hand New Economics of Labour Migration (NELM) theory that was later developed, views migration as a temporary strategic move to maximize income in order to fulfill a specific set of objectives.

2.2.4 New Economics of Labour Migration (NELM) Theory

The NELM theory emerged as a critical response to Neoclassical in 1980s and 1990s by Stark, Levhari, Lucas and Russell. It views migration as a risk sharing behavior of households as they are able to diversify resources in order to maximize income and on the other hand to minimize and spread risks. This theory attempts to explain why people remit, accentuating on the three main reasons that include pure altruism, self-interest and diversification of risks as backed by (Lucas, 2003).

I) Pure Altruism

According to pure altruism motive, migrants remit money so as to provide additional income to their relatives because they care about their wellbeing. This motive highlights that remittance tends to increase when the remitter's income increases, unless the potential remitter's income is very low, below subsistence level (Lucas and Stark, 1985).

II) Self-Interest

The self-interest motive explains that migrants send money home to increase their visibility hence eligibility to inheritance and access other resources in the community of origin. They send remittances with the aim of reimbursing the household for past expenditures such as

schooling or the cost directly related to migration. In this case, they remit so as to purchase durable goods and invest in housing, land or businesses at home (Lucas and Stark, 1985).

III) Risk Diversification

According to risk diversification motive, migration is taken as a family grand plan to diversify income and unlock capital constraints on investment. In addition market failures create incentive for international migration through offering low wages as a result of high unemployment. Therefore it is pareto superior to have members of the households migrate to another place, as a means of risk sharing or as investment to access higher earnings streams (Stark, 1991).

2.2.5 Neoclassical Theory of Economic Growth(1960)

The neoclassical theory of economic growth was developed by Solow stresses on capital accumulation and saving as an important determinant of economic growth. The theory considers capital and labour as determinants of output and in addition technology is exogenously determined (Acemoglu, 2008).

Assuming that technology is labour augmenting then:-

$$Y = F(K, AL) \tag{2.9}$$

Where Y is the Output, K is capital, L is labour and A is technology.

This implies that technology changes increases the productivity of labour. Unlike the fixed proportion H-D, neoclassical growth considers unlimited possibilities of substitution between capital and labour in the production process. It also assumes that planned investment equals savings because of the immediate adjustment in price. It therefore focuses on the supply side rather demand side. The growth of output is achieved through higher saving and therefore higher rate of capital formation. The process ends in steady state where the growth rate of output equals the growth rate of capital and labour so that per capita income and per capita capital are no longer changing, this can be achieved if income and capital are growing at the same rate as labour force.

Growth is achieved if planned investment is greater than the required investment to keep per capita income constant, and capital per worker will increase. This would in turn increase the productivity of the worker and as a result the economy will grow at a higher rate than steady state. However, this higher rate of steady state would not be continuous due to diminishing return to capital will bring it back to steady state though at higher levels of per capita income and capital per work. The long term economic growth is determined by an increase in labour-

enhancing technology progress (Acemoglu, 2008). This study therefore borrowed a lot from this theory since remittances influence savings necessary for changes in capital stock and on the other hand enhances brain gain through exposure to technical skills (Mayr and Peri, 2008).

2.3 Empirical literature

Oda (2004) studied the impact of remittances on economic growth on 91 developing countries, by employing panel GMM and found that remittances positively affect economic growth for a period spanning from 1976 to 1991. A standard utility maximization theory was employed. Data was averaged over a 5 year period 1976 to 1996 and for year period 1996 – 1999 to avoid influence of short-run fluctuations resulting from business cycles. The variables included in this study were per capita GDP, workers remittances, human capital, investment, inflation and openness.

Barajas *et al.* (2009) examined the effect of remittances on economic growth in Developing countries as spanning from 1970 to 2004 and found no impact. They incorporated an instrument that is both correlated with remittances and would only be expected to affect growth through its effect on remittances. The instrument that was constructed was the ratio of remittances to GDP of all other recipient countries, (workers' remittances to the rest of the world). They argued that the instrument help capture the effects of global reductions in transactions costs and other systematic changes in the microeconomic determinants of remittances, since such changes should increase remittances globally.

In addition a new control variable that is the trade-weighted average growth rate of real per capita GDP of the remittance-receiving country's top 20 trading partners was added to control for trade effects. However, this instrument may not be efficient in controlling for endogeineity in examining the effect in SSA since its effect on growth is minimal (Balde, 2009). The effect on Sub-Saharan is indirect considering that they are inflows to the other countries and only one category (workers remittances) was taken into account.

In a study by Das (2009) on whether remittances and grants behave similarly as from 1975 to 2006 for four countries using panel GMM, the results showed that remittances have no significant relationship with investment for all but on one country that is Bangladesh. Other countries included Egypt, Pakistan and Syria. The variables included in this study were real GDP growth rate, investment, growth rate of labour force, grants, other capital flows, interest rate, remittances and inflation.

Katsushi *et al.* (2012) studied remittances, growth and poverty for Asian counties using a panel of 24 countries spanning from 1980-2009 and found that remittances contribute positively to economic growth as well as poverty reduction. Two stage estimation technique was employed. The variables include real GDP per capita growth rate, remittances as a percentage of GDP, financial sector development, inflation, civil war, resource abundance, capital account, openness and investment.

Shera and Meyer (2013) examined the impact of remittances on economic growth of Albania using OLS regression for a panel of 21 counties spanning from 1992-2012. The findings were that remittances positively affect economic growth. The variables used in estimation include real GDP per capita, workers remittances, fixed capital formation, human capital, inflation, FDI, openness, consumption expenditure. This study might have suffered from misspecification bias since real GDP per capita accounts for the effect of inflation, yet inflation was included. In addition endogeineity bias resulting from reverse causality was not corrected thus likely inconsistent estimates (Holtz-Eakin, 1992), since the coefficient of the estimated parameters will be biased.

In a study by Siddique *et al*. (2012) on remittances and economic growth on South Asian countries using granger causality time series framework for 25 year period , where each country was studied independently. They found that per capita remittances does not lead to economic growth in Bangladesh, no causality in India and a two way directional causality was found in Sri Lanka. The study incorporated financial liberalization, gender issues, regulation and enforcement, investment and saving schemes and promotion and education. Granger causality is only designed to handle pairs of variables and may bring misleading results if the true relationship involves more than two variables.

Using ARDL in Pakistan, Javid *et al*. (2012) examined the impact of remittances on growth and poverty covering the period 1973 to 2010 and found that workers remittances strongly affect poverty reduction and economic growth. In estimating remittance growth relationship, they controlled for gross capital formation, human development and openness while the second model controlled for income and inequality.

Azam and Khan (2011) estimated the effect of workers remittances on economic growth of Azerbaijan and Armenia using OLS regression spanning from 1995 to 2010.the study found that remittances lead to economic growth. However, the estimation suffered from omitted variable bias since other important determinants of economic growth such as investment,

openness, human capital, were left out. This violates the classical regression assumption that the explanatory variable is uncorrelated with the error term thus the estimators will be biased and inconsistent.

A study by Karagoz (2009) on workers remittances and economic growth in Turkey using time series regression spanning from 1970 to 2005 found statistically significant but negative impact on growth. However, the study ignored the effect of the other categories of remittances on growth including compensation of employees' remittances. In addition the study used time series thus have the disadvantage of having less degree of freedom and less sample variability leading to inefficient estimates, in addition time series suffers from the problem of multicolinearity.

A study by Fayissa and Nsiah (2008) used a panel of 37 countries in Africa spanning from 1980 to 2004, employing GMM and a convectional neoclassical model. The results showed that remittances boost growth in countries where the financial systems are less developed by providing an alternative way to finance investment and helping overcome liquidity constraints. However, this study employed GMM in estimation which has the disadvantage of providing inconsistent estimators as a result of using first difference to eliminate country specific effects and use of lagged instruments for simultaneity in the first differenced equation. The instruments become weak after the first difference (Blundell and Bond, 1998). The study also used remittances in aggregate form.

Muchemwa (2012) studied the effects of remittances on economic growth in sub Saharan Africa from 1980 to 2008 using panel GMM. The study found a positive effect. However, inflation was included as a control variable while real values were used and incorporated population while per capita growth rate was used. In addition the study used aggregate measure of remittances which can lead to invalid conclusions on the effect of remittances giving inappropriate decisions since the standard errors estimates could be wrong. Disaggregation of data has the tendency of making the invisible visible.

A study by Okodua (2012) on workers remittances and output growth in SSA using a panel of 21 countries from 2000 to 2007 based on neoclassical theory of growth revealed that remittances have negative insignificant effect of economic growth. System GMM approach was employed. This study however focused on only remittances coming from permanent residents and ignored compensation of employees category, thus this estimation may not have captured the total effect of remittances. In addition no test for unit root was conducted to

remove any unit root in case it was present in some variables thus possibility of spurious results.

Nkoro and Uko (2010) examined the relationship between foreign capital inflows and economic growth in Nigeria spanning from 1981 to 2010 using granger causality. The results of error correction model revealed there is a significant negative effect of remittance on real GDP and the block of exogeneity tests shows that the granger causality runs from remittance to real GDP only.

Mwangi and Mwendwa (2015) examined the effect of international remittances on economic growth in Kenya using OLS regression for a period between 1993 and 2013. The study was based on the accelerator theory and in addition granger causality revealed two way causality between remittances and economic growth. Variables of study included Growth rate of real GDP per capita, population, investment, human capital, inflation, openness, Government consumption and remittances. Remittances positively affected economic growth. In this study endogeineity problem resulting from reverse causality was not controlled thus the results could have suffered from endogeineity problem thus a likelihood of biased coefficients.

A study by Akonji and Wakili (2013) examined the impact of net migrant remittances on economic growth on Nigeria for a period between 1980-2010 using Seemingly Unrelated Regression (SUR) and error correction model, the findings were that net remittances leads to economic growth if financial institutional are developed and made more competitive to provide remittances services at reduced cost. The following variables were incorporated in estimation Real GDP, Financial development, saving rate, inflation rate, nominal exchange rate, government expenditure and foreign direct investment.

Using OLS, Bett (2013) studied the effect of diaspora remittances in Kenya spanning from 2003 to 2012 basing on neoclassical theory of growth. The study found that remittances significantly and positively affect economic growth. The variables studied included Real GDP per capita, human capital, openness, inflation, Government consumption and remittances. However, this study might have suffered from spurious regression results since no unit root test was conducted to determine whether variables were stationary or not. In addition, it was based on times series data leading to inefficient estimates due to less sample variability and less degrees of freedom.

In conclusion, the existing literatures fail to provide unanimity on the evidence drawn on the effect of remittance on economic growth on three dimensions. Some found positive, negative and others no effect at all. In addition, all these studies except for Fayissa and Nsiah (2008); Balde (2009); Barajas *et al*. (2009); Das (2009); Muchemwa (2012) and Okodua (2012) are based on time series which lacks the greater capacity for capturing complexity of features that on the other hand panel data can. Most studies also focused on workers remittances and ignored compensation of employees and profit remittances.

2.4 Theoretical Framework

This study is based on neoclassical growth model developed by Solow (1956). The model assumes the key factor of productivity is capital accumulation measured by output per worker. As Capital deepening continues the economy reaches its steady state, a point at which net investment grows at the same rate as the labor force and the capital-labour ratio remains constant. Saving rate is a key determinant of the steady-state capital stock. With high saving rate, the economy will have a large capital and a high level of output at the steady state and the reverse is true (Romer, 2012).

The Neoclassical theory of growth is relevant because remittances can influence savings for productive investment by raising incomes of the receivers. In addition, they can raise labor productivity through improving technical skills. They also tend to reduce credit constraints and accelerate human development through financing of better education and health. According to Sachs (2006), remittances increase savings and in turn investment increase and thus the overall GDP. They act as a buffer stock against adverse productivity shocks. Income growth can be obtained by a combination of high savings, development of human capital and technology among others. All per capita income growth in steady state is as a result of exogenous technological progress and is assumed to be constant with no economic incentives. Several authors including Schutt (2003) and Romer (2012) found that capital and labour only explain a fraction of output growth and incorporating human capital partially reduces the unexplained growth or Solow residual.

According to (Romer, 2012) the Solow growth model assumes Cobb-Douglas production function.

$$Y_{(t)} = F\left(K_{(t)}, A_{(t)}L_{(t)}\right) \tag{2.9}$$

Where: - $Y_{(t)}$, $K_{(t)}$ and $A_{(t)} L_{(t)}$ are output, physical capital, and effectiveness of labour respectively. t - Instantaneous time.

Output can only be changed through K, L and A. Land and natural resources are assumed to be fixed thus ignored. There are constant returns to scale: -

$$F(\lambda K, \lambda AL) = \lambda F(K, AL), \ \lambda \geq 0$$

Constant return to scale is a combination of two separate assumptions:-

      a) That the economy is large enough such that the gains from specialization have been exhausted.

      b) Inputs other than capital, labour and knowledge are relatively unimportant thus neglected.

Thus output $Y_{(t)}$ can be expressed in intensive form, taking $\lambda = 1/AL$.

$F(\dfrac{K}{AL}, 1) = \dfrac{1}{AL} F(K, AL)$. Denoting $k = \dfrac{K}{AL}$, $y = \dfrac{Y}{AL}$ and $f(k) = F(K, 1)$ then output per unit of effective labour can be expressed as a function of capital per unit of effective labour as below

$$y = f(k) \tag{2.10}$$

The initial levels of capital; labour and knowledge are taken as given and assumed to be strictly positive.

Evolution of effective labour in the Solow model and knowledge grow at constant exogenous rate n and g.

$$\dot{L}(t) = nL(t) \tag{2.11}$$

$$\dot{A}(t) = gA(t) \tag{2.12}$$

The two functions above represent the first derivative of L (·) and A (·) as a function of t with respect to t respectively, which is given by a scalar multiplied by the function itself.

Hence for the given initial levels of L and A, this implies that labour and knowledge grow exponentially $L(t) = L(0)e^{nt}$ and $A(t) = L(0)e^{gt}$ respectively. Where, e denote exponential.

Output is divided between consumption and investment. The fraction of output devoted to investment, s is constant and exogenous.

$$S_{(t)} = sY_{(t)} \tag{2.13}$$

Capital depreciates exponentially at rate δ so that the law of motion of capital stock is given by:

$$\dot{K}(t) = sF(K(t), L(t), A(t) - \delta K(t) \qquad (2.14)$$

The equilibrium of Solow model is described by equation 2.14 and the laws of motion of A and L.

Thus the dynamics of capital per effective labour $k = \dfrac{K}{AL}$

$$\dot{k}(t) = \frac{\dot{K}(t)}{A(t)L(t)} - \frac{K(t)}{(A(t)L(t))^2}\left(A(t)\dot{L}(t) + \dot{A}(t)L(t) \right)$$

$$\dot{k}(t) = \frac{\dot{K}(t)}{A(t)L(t)} - \frac{K(t)}{A(t)L(t)}\left(\frac{\dot{L}(t)}{L(t)} + \frac{\dot{A}((t)}{A(t)} \right)$$

$$\dot{k}(t) = \frac{sY(t) - \delta K(t)}{A(t)L(t)} - k(t)(n+g)$$

$$\dot{k}(t) = sf(k(t)) - (\delta + n + g)k(t) \qquad (2.15)$$

Where $sf(k(t))$, is the gross investment in the physical capital per unit of effective labour, $(\delta + n + g)k(t)$ is the effective depreciation of capital per unit of effective labour. Steady-state capital per effective per effective labour, k^* is such that,

$$sf(k(t)) - (\delta + n + g)k^* = 0$$

At $k*$, investment equals effective depreciation and k remains constant over time and because of conditions; there is only single value of k^*. Effective labour, AL, grows at the rate $(n+g)$, capital also grows at the same rate. Aggregate output grows at the rate $(n+g)$ due to constant returns to scale. In the steady state; all variables grow at constant rates. Hence, the equilibrium (steady state) rate of growth of output is determined by the rate of technological progress only. Thus at the steady state, we have:

$$sf(k^*) = (\delta + n + g)k^*$$

Savings rate, s, is a key parameter of the Solow model. An increase in s implies higher gross investment; k grows until it reaches its new (higher) steady state value. In the transition to the new steady state, the rate of growth of output per worker accelerates. Once the new steady state is attained, all variables grow again at the same rates as before.

Output per worker again grows at the rate of growth of technological progress, g which is independent of s. An increase in the savings rate only leads to a temporary increase in the growth rate of output per worker (but a permanent rise in the level of capital per worker and output per worker). In Solow model, only changes in technological progress have permanent growth effects while all other changes have level effects only (Romer, 2012).

However, the model is limited in that it assumes the savings rate as given. In addition it cannot explain the quality of long-run technological progress since technology is exogenously determined (Romer, 2012). Despite these limitations, the model still performs well as a growth reference point compared to other such endogenous growth models.

Researchers have pointed out the ways in which remittances influence economic growth including increase in capital accumulation to finance investment and by labour inputs through labour force participation (Sachs, 2006). Thus unconstrained labour migration would lead to scarcity of labor, resulting in a higher marginal productivity of labour and increasing wage levels in migrant sending societies. Capital flows including remittances will in the opposite direction as labour migration thus developmental role of migration is entirely realized as more income will be available thus increased saving, investment and thus economic growth (Constant and Massey, 2002).

2.5 Conceptual Framework

Figure 2.1 represents the diagrammatic interaction of the dependent, independent and intervening variables. The dependent variable is the explained variable in the model. The independent variables are determined outside the model and are assumed to have a direct effect on the dependent variable. Intervening variables represents other factors that have an influence but the researcher has no control over them.

Independent Variables   **Dependent Variable**

- Remittances
    - Employees' Compensation
    - Workers' Remittances
    - Profit Remittances
- Real Private Investment
- Human Capital
- Openness (Sum of exports and Imports)
- Terms of Trade

Real GDP per Capita

- Government Policies
- Culture
- Money Laundering
- Corruption
- Political Instability

Intervening Variables
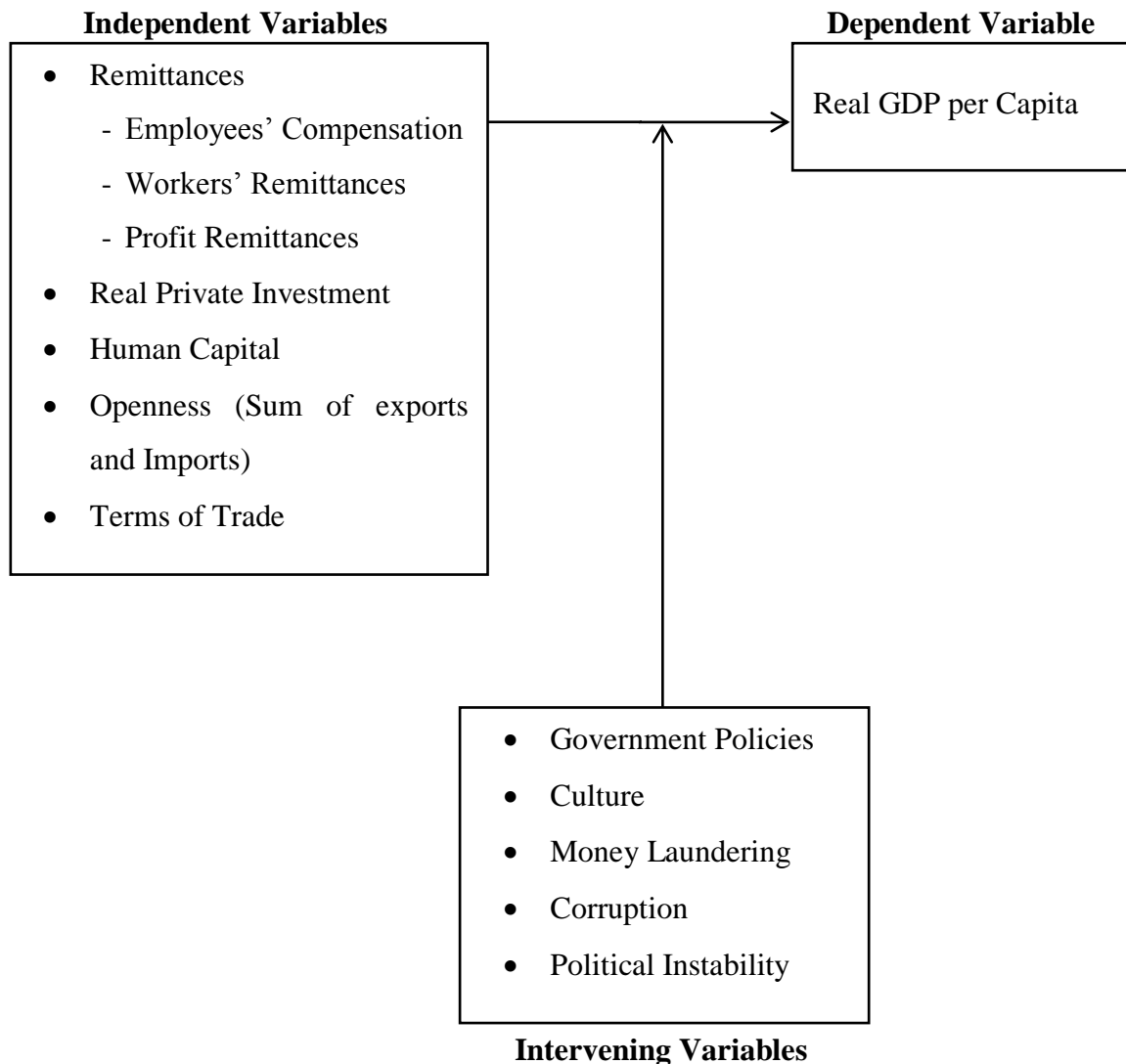
Figure 2.1: Conceptual Framework

Remittances constitute an important source of foreign income thus can influence economic growth by boosting the foreign currency reserve and BOP. Remittances comprise compensation of employees and workers remittances. In addition to profit remittances, these items account for the largest source of capital for emerging markets and developing countries in terms of investment. Real private investment provides the foundation of economic growth

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of any nation. Human capital contributes towards economic growth as skills and abilities by human beings increases productivity and innovativeness. Openness encourages investment due to self-fulfilling expectations by investors. Terms of Trade (TOT) was expected to have a positive impact on growth through its increase in the real purchasing power domestic production, thus can have large impacts in consumption, savings and investment hence economic growth. One model would be estimated examining the effect employees' compensation remittances, workers remittances and profit remittances on economic growth respectively. Other variables are control variables.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the research design, study area, model specification, justification of variables, sources of data, and data analysis techniques.

3.2 Research Design

The study employed a historical research design so as to capture the trend of remittances and economic growth among the Sub Saharan African countries, covering the period 1980-2015. The study was estimated using dynamic panel analysis that employed secondary data. This research design is useful since it helps the researcher examine the trend and predict about the future for better decision making (Shams, 2013).

3.3 Study Area

The study area was SSA; which is a region that is part of the continent of Africa that lies to the south of Sahara desert. The UN classifies all the African countries that are fully or partially located to the south of Sahara to be part of SSA but excludes Sudan. The SSA region was chosen since the problem of resource gap is more pronounced and over the past decades economists have focused on economic growth. In addition the region has recorded increase in remittance flows. SSA is composed of 48 countries but only 36 countries were chosen due to data availability. Annex B in the appendices gives the list of the countries that were included in analysis. Gabon, Equatorial Guinea, Somalia, South Sudan, Congo, Central African Republic, Chad, Eritrea, Mauritania, Mauritius and Zimbabwe do not have consistent data in remittances. Figure 3.1 below gives the map of study area.

Figure 3.1: Map of Study Area

Source: www.mapsofworld.com, retrieved on 31st August 2016

3.4 Justification of Variables and Sources of Data

The relationship between economic growth and remittances can be affected by many factors. One dependent variable (real GDP per capita) and seven independent variables are selected based on theory and reviewed literature.

3.4.1 Real GDP Per Capita

Real GDP per capita is an important indicator of economic growth because if it increases, other components of the society will also be doing well such as personal income,

investments and increased employment thus human development. On the other hand, if it is declining then business will hold off investing in new purchases and hiring new employees, which weakness the economy. In addition it captures the effect of population on economic growth.

High population growth creates pressures on limited natural resources and creates demand for goods and services. It also reduces private and public capital formation, as well as diverts additions to capital resources to maintaining rather than increasing the stock of capital per worker. Others point to positive effects such as economies of scale and specialization, the possible spur to favorable motivation caused by increased dependency, and the more favorable attitudes, capacities, and motivations of younger populations compared with older ones. A positive effect of remittances on economic growth was expected.

3.4.2 Remittances

Remittances are a composition of compensation of employees, workers remittances and migrant transfers recorded in the BOP account according to the fifth edition balance of payment manual (BPM5), (Slovenia, 2007). The sixth edition balance of payment manual was later developed to allow for compensation of employees and workers remittances (replaced by personal transfers) as standard components with other supplementary items.

Researchers have argued that, remittances inflows are a stable source of foreign currency thus curtails investor panic consequently they help to reduce current account deficit, improve the BOP position and reduce dependence on external borrowing (Abdus and Zafar, 2005). They also have a tendency of rising during economic down turns, political instability and natural distress since migrants send more money to help their families in response to their increased needs (Ratha, 2013). Therefore they have greater potential of generating positive impact on the recipient welfare.

On the other hand remittance outflows through repatriated profits generated from FDI have an impact on economic growth since they are captured in the BOP of a country. Remittances are expected to have a positive effect on economic growth.

I) Employees' Compensation

When resident workers work for nonresident employers such as embassies and diplomatic missions and international organizations their benefits are considered to be part of remittances. But these employees of nonresident employers have not migrated beyond the

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geographic border of their home country. In balance of payments, embassies, and international organizations are not considered to be part of the economy in which they may physically exist (IMF, 2009). In addition, other seasonal and short-term remunerations paid to migrants working abroad form part of remittances when they are remitted back home.

Compensation of employees' measures the value of labor on accrual basis thus contributes to the net output along with other factors of production. Some countries in sub Saharan Africa depend largely on employees' compensation than workers remittances; they include Lesotho, Botswana, Congo and Tanzania (Adenutsi, 2013).

II) Workers Remittances

Workers remittances constitute an important proportion of remittances inflows and are used for altruistic reasons to support living standards of households, in addition these inflows are influenced by peculiarly gains in relation to incentives offered by the recipient countries such as exemptions of taxes and preferred interests (Mim and Ali, 2012). Through the two motives, workers remittances are expected to influence economic growth.

III) Profit Remittances

FDI has been prioritized in all developing countries and SSA is no exception. With this wave of economic globalization and privatization, the region has attracted a significant number of new investments. Increase in production following the economic recovery has contributed to more profits to companies and thus the volume remitted abroad, therefore need for concern.

3.4.3 Real Private Investment

Private investment is the key engine of economic growth. Private investment generates the necessary capital for growth. In addition, private investment is a requisite to skills necessary for development. Private investment enhances diffusion of technology and innovation for countries' prosperity. According to Bayraktar (2003) economic growth and development depend on the country's ability to invest and make efficient and productive use of its resources. It is also seen as an engine for job and income generation not withstanding its contribution to both infrastructure and social services. Private investment is expected to increase economic growth.

3.4.4 Human Capital

Theories have suggested that human capital development is vital for countries prosperity as it increase the quality of life (Romer, 2012). Of late human capital has been given considerable

preference as it opens significant opportunities for economic and social development, therefore improving economic growth. Thus human capital was used to capture the effect of human capital on economic growth and a positive effect is expected.

3.4.5 Openness

Openness index is introduced because most of the countries growth rate occurs as a result of export led development strategies. Openness is expected to have positive effect on economic growth because with openness the countries can access more financial resources and markets. Thus a more open economy is expected to have greater economic growth than a closed economy. Trade openness enhances competition, redistribution of skilled workers and reduces rent seeking opportunities in the economy (Yeboah, 2012).

3.4.6 Terms of Trade

An improvement in the nations terms of trade benefits that country in the sense that it can purchase more imports for any given volume of exports. An improvement in the terms of trade due to boom in commodity price may result in appreciation in the real exchange rate that increases real wages in the sectors that produce importable goods. Aggregate output can fall due to this mechanism (Dutch disease) (Hernandez, 2011).

On the other hand TOT can a have a positive impact on growth since an increase in export prices relative to imports prices allows a larger volume of imports to be purchased with a given volume of exports. This increase in the real purchasing power of domestic production is equivalent to a transfer of income from the rest of the world. It can have a large positive impact on consumption, savings and investment. In addition TOT can be thought as a rate of return on investment, therefore a secular improvement in TOT lead to increase in investment thus growth (Borkin, 2006).

Data on real GDP per capita, compensation of employees, workers remittances (proxied by using personal transfers), profit remittances, terms of trade, real private investment, openness (proxied by sum of exports and imports) and human capital (proxied gross secondary school enrollment of both sexes) was obtained from Econstat, IMF, World Bank Development indicators.

3.5 Model Specification and Estimation Technique

Javid *et al*. (2012) specified an empirical model to explore the impact of remittances on economic growth. The model incorporated the following variables log of real GDP,

remittances as percentage of GDP, gross fixed capital formation as percentage of GDP, human development index and trade openness.

To meet the first, second and the third objective the study employed (Javid *et al*., 2012) and in addition the study incorporated TOT to account for effect of real purchasing power of domestic production. The model was specified as follows

$$lnGDPpc_{it} = \alpha + \beta_1 lnCE_{it} + \beta_2 lnWR_{it} + \beta_3 lnPR_{it} + \beta_4 lnZ_{it} + \mu_{it} \qquad (3.1)$$

Where $GDPpc_{it}$ represent real GDP per capita, CE denotes compensation of employees in USD, WR denotes workers remittances in USD , PR denotes profit remittances in USD , Z represent a matrix vector of the control variables that include real private investment, terms of trade, human capital and openness, μ_{it} is the error term. $\alpha, \beta_1 ..., \beta_n$, represent the estimated parameters and ln is natural log.

To estimate the parameter corresponding to the variables of interest, panel data estimation was employed and thus the model estimated using a system GMM, given that some of the traditional factors that explain growth are endogenous and growth depend on its lagged values. Anyanwu and Erhijakpor (2010); Muchemwa (2012), suggested that OLS results can be biased because of endogeineity (reverse causality between remittances and economic growth) and does not account for country specific effects in dynamic growth models.

Arellano and Bond (1991) specified a dynamic variant of fixed and random effects as follows:

$$\Delta Y_{it} = \alpha' \Delta Y_{it-1} + \gamma' Z_{it-1} + \mu_i + \varepsilon_t \qquad (3.4)$$

Where, ΔY_{it} represent the first difference of natural log of dependent variables, α' and γ' represent the estimated parameters, ΔY_{it-1} is the lagged difference of the dependent variables, Z is the vector of explanatory variables included in the regression equation, μ_i is the country specific effect and ε_t is the error term. The GMM estimation technique solves for endogeineity problems and biases resulting from measurement error by using lagged instrument variables.

A more consistent GMM estimator that combined differenced variables and at their levels in the system was developed by (Blundell and Bond, 1998). This System GMM estimation

included time invariant regressors that tend to disappear in Arellano and Bond (1991) GMM. In addition, the estimators resulting from the GMM estimation developed by Arellano and Bover (1995); Arellano and Bond (1991), become weak after the first differences thus tend to be inefficient. The System GMM estimation on the other hand tend to overcome this weakness by using forward orthogonal deviations that subtract the average of all future available observations of a variable (Blundell and Bond, 1998).

The System GMM estimation was therefore adopted to help in eliminating heteroscedasticity, non-normality of residuals and remove biases caused by reverse causality. It was appropriate for this study since lags of dependent variable are included thus increasing the number of explanatory variables. Therefore by allowing for more instruments, the estimated parameters of System GMM will be efficient and more consistent.

3.6 Justification of Panel Data

Hsiao (2014) identified several advantages of using panel data Panel data. First, it enhances capacity for capturing the complexity of features by allowing one to control for variables that cannot be observed or measured like cultural factors or differences in business practices across entities. Second, it controls for variables that change overtime but not across entities such as national policies and government regulations thus accounts for individual heterogeneity. In addition, panel data allows one to include variables at different levels of analysis. Finally, panel data contributes to more accurate inference of model parameter since it contains more degrees of freedom and more sample variability thus solves for multicolinearity and improves the efficiency of econometric estimates.

3.7 Data Analysis

This section presents pre-estimation tests such as panel unit root and panel co integration tests. It also covers panel post estimation diagnostic techniques. Both descriptive and inferential analysis was used to analyze data.

3.7.1 Panel Unit Root Test

Empirical work based on econometrics analysis assumes that data is stationary that is the mean; variance and auto covariance remain unchanged when shifted in time by an arbitrary value. When the first two moments are stationary then the stochastic process is said to be weakly stationary. If a variable is non-stationary then it means it has at least one unit root. Therefore we have to difference it to remove the unit root so as to make it stationary. Most macroeconomic variables have at least one unit root. Maddala and Wu (1999) and Choi

(2001) developed a fisher type panel unit root test that combined p-values for each unit root for each cross section unit to test for unit root.

$$p = -2\sum_{i=1}^{N} \ln p_i$$

The test is asymptotically distributed for chi-square with 2N degrees of freedom ($Ti \to \infty$ for finite N). Choi (2001) pointed the advantages of Fisher type that the cross-sectional dimension N can be finite or infinite, each group can have different components of non-stochastic or stochastic components, it is suitable for unbalanced panels and allows for heterogeneous coefficients. Choi (2001) proposed a Z-test when N is large.

Levin *et al*., (2002) developed a unit root test that assumes each individual unit panel shares the same AR (1) coefficient but allows for individuals effects, time effects and possibly a time trend. This test suitable for macro panels that is it performs well when T and N lie between 5 and 250. However the test critically lies on the assumption of cross-sectional dependence. In addition the null hypothesis that all cross sections have unit root is very restrictive.

Im *et al.* (2003) developed a unit root test known as Im, Pesaran and Shin (IPS) that is less restrictive as compared to Levin Lin Chu (LLC), since it allows for heterogeneous coefficients. Monte Carlo simulations reveal that small sample performance of IPS to be better than LLC. However, Fisher type outperforms both IPS and LLC since they have little power if deterministic trends are included in analysis.

This study therefore adopted Fisher-type unit root test. This test is appropriate for various cases with finite or infinite cross sections; unbalanced panels and lag lengths of Phillips-Perron are allowed to differ. It includes a test that permits heterogeneity for autoregressive root under alternative hypothesis, unlike for LLC that assumes p- values to be same for all series under alternative hypothesis. In addition the Fisher unit root test outperforms IPS test since it has size adjusted power (Fisher shows some distortion when N=100*)* and can be easily implemented in Stata (Net *et al.*, 2011).

3.7.2 Panel Co-integration Test

When there is a long run movement of two non-stationary variables integrated of the same order and a linear combination of these series is stationary, then variables are said to be co-integrated. To determine whether there is a long run relationship between variables the study would have employed (Pedroni, 1999) co integration test since it allows for considerably

heterogeneity among members of individual panel in the short run and in the long run information is selectively pooled across the panel. At first one needs to compute the regression residuals from hypothesized co-integrating regression.

Secondly the long run variance is calculated using Kernel estimator such as the one suggested by Newey and West, then appropriate auto regression is estimated using the residuals of the original co integrating regression and the variance is computed.

Lastly in computing the t- statistic, the truncated values for lagged difference in ADF regression are obtained using a standard step down procedure (Pedroni, 1999).

3.7.3 Panel Post Estimation Diagnostic Tests

Panel post estimation diagnostic tests provide means for analyzing sensitivity to observations, and analyzing residuals.

I) Test for Cross Sectional Dependence

Cross sectional dependence refers to the interdependence between error terms of different cross sectional units. It arises from common shocks and unobserved components between panel units that becomes part of error terms (Sarafidis and Wansbeek, 2010).With cross-sectional dependence, loss of efficiency in estimators can be experienced thus render t-tests and F-tests invalid and can lead to biased and inconsistent tests results

The study adopted the Pesaran test for cross-sectional dependence, the null hypothesis states that there exist no cross sectional dependence (Pesaran, 2004). This test is adopted sine it works well with unbalanced panels and when N >T. Any possibility of cross sectional dependence would be solved by use spatial processes system GMM

II) Test for Autocorrelation

Auto correlation refers to the degree of similarity between a given time series and a lagged version of itself over successive time intervals. The causes of autocorrelation include ranges use of lagged explanatory variable. As a result the number of independent observations reduces, thus makes estimators less efficient and biased standard errors.

The study employed Arellano-Bond (1991) test for autocorrelation. The null hypothesis states that there is no autocorrelation. Monte Carlo experiments proved that it has good size and power properties. AR (2) in first differences normally detects autocorrelation in levels hence it is the most important in decision making (Mileva, 2007). To correct for autocorrelation in

case it is found to be present, the system GMM would correct it automatically since it is designed for situations with autocorrelation (Baum, 2013).

III) Test for Heteroscedasticity

Heteroscedasticity occurs when the variance of the disturbance is not constant. As a result it can cause standard errors to be biased and thus lead to biasness in tests statistics and confidence intervals. The study therefore used Modified Wald test for group wise heteroscedasticty. The null hypothesis states that $\delta_i^2 = \delta^2$ for all $i = 1, \ldots M$ where M is the number of cross-sectional unit. To correct for heteroscedasticity, the system GMM would be run using robust standard errors.

IV) Test for Over Identification

The system of GMM involves the use of instrumental variables, the instruments may be correlated with the error term thus may render results inconsistent. Sargan's test was used to test for over identification in order to examine whether the model is correctly specified and if one or more of the excluded exogenous variables are to be included in the structural equation. The null hypothesis states that over identification restrictions are valid. To correct for over identification some instruments would be dropped to make the estimation less restricted this could be done by adjusting the number of lags (Arellano and Bond, 1991; Gibbons and Overman, 2012).

4.1 Introduction

This chapter presents the findings of this study from dynamic panel analysis and it begins with descriptive statistics. Descriptive statistics were computed to show summary, trend and pattern of variables. It enables the research to present data in a more meaningful way. Panel diagnostic tests of the variables were also conducted to ensure that the model was well specified. The chapter also highlights panel data estimation results obtained using system GMM. All variables were expressed in log form so as to allow the researcher interpret the estimated coefficients as elasticities.

4.2 Descriptive Statistics

Descriptive statistics form the foundation in any quantitative data analysis by unfolding the basic features of data. They provide precise summaries on samples and measures. Specifically, the mean, standard deviation, minimum and maximum were computed to summarise the data the results presented on Table 4.1.

Table 4.1: Descriptive Statistics

Variables	lnGDPPC	lnCE	lnWR	lnPR	lnRPI	lnHC	lnOP	lnTOT
N	1236	1291	889	1276	1294	753	1186	1295
Mean	6.305	16.397	17.155	17.174	20.002	4.683	21.426	4.546
Std. Dev.	0.993	2.604	2.352	2.386	1.812	4.903	1.643	0.466
Min	4.172	0.042	9.540	9.679	14.174	0.910	17.444	1.566
Max	9.699	24.257	25.424	23.865	25.080	22.510	26.303	7.667

Where,

$lnGDPPC$ = natural log of per capita real gross domestic product

$lnCE$ = natural log of compensation employees' remittances

$lnWR$ = natural log of workers' remittances

$lnPR$ = natural log of profit remittances

$lnRPI$ = natural log of real private investment

$lnHC$ = natural log of human capital

$lnOP$ = natural log of openness

$lnTOT$ = natural log of terms of trade

Table 4.1 above shows the descriptive statistics for the variables of study. Log of real GDP per capita and terms of trade show relatively smaller variation as compared to other variables. Log of real GDP per capita ranges from 4.171 to 9.69 while log of terms of trade ranges between 1.5658 and 7.6656. This implies real GDP per capita and terms of trade has a relatively low volatility as compared to other variables. This is also depicted by the standard deviation which is as low as 0.9993 and 0.466 for real GDP per capita and terms of trade respectively. This has an indication that real GDP per capita has been consistent, causing economic backdrop. This can be linked to the global economic recession that caused economic decline in the world markets in 2007. Therefore slow growth rates resulting from the effects of global financial crisis and great depression are still a drag on economic growth. In addition, this may be linked to low investment, corruption scandals and high unemployment that the region has experienced. High volatility in openness implies the tendency of the market to rise or fall sharply within a short period is high. This can be explained by wide price fluctuation leading to heavy trading through investment diversification.

The results on the other hand suggest that there is high volatility in real private investment and human capital that can be attributed to global macro-economic shocks. The high volatility in workers remittances, compensation of employees and profit remittances may be attributed to changes in the global migration as well as shocks experienced in the financial market.

4.3 Correlation

Correlation shows the degree of association between variables and the absolute value of the correlation coefficient ranges between 0 and 1. A value of 1 indicates that there is a perfect correlation between variables and a value of 0 indicates no association. The sign of the correlation coefficient is positive one for direct relationship and a negative for an indirect relationship. Correlation can be weak, moderate or strong.

Table 4.2: Correlation Matrix

	lnGDPPC	lnCE	lnWR	lnPR	lnRPI	lnHC	lnOP	lnTOT
lnGDPPC	1.00							
lnCE	0.28**	1.00						
lnWR	0.15**	0.40**	1.00					
lnPR	0.47***	0.34	0.38	1.000				
lnRPI	0.33**	0.48**	0.39**	0.65***	1.00			
lnHC	-0.11**	-0.26	-0.25	-0.08	-0.04	1.00		
lnOP	0.36***	0.41	0.44	0.69***	0.89	0.02	1.00	
lnTOT	-0.10**	-0.04	-0.04	-0.10	-0.11	0.19	-0.087	1.00

*** Significant level at 0.01 (2- tailed)

** Significant level at 0.05 (2- tailed)

The diagonal of the matrix has values of 1 because a variable has a perfect correlation with itself. Correlation between compensation of employees and real GDP per capita is positive, weak (0.28) and significant at 5 % significance level. This implies that there is a positive relationship between compensation of employees and real per capita GDP. This is because compensation of employees has a tendency of raising the domestic output by raising the consumption and investment behavior of households.

It is shown that there is a positive but weak correlation (0.15) between workers remittances and real GDP per capita and it is significant at 5% level. This implies that workers' remittances have a positive association with real per capita GDP since they increase the per capita incomes of individuals which are in turn reflected in the real GDP per capita.

The correlation between profit remittances of employees and real GDP per capita is positive, moderate at (0.47) and significant at 1% level. Therefore profit remittances have a positive association with real GDP per capita. This is because they are generated from investment therefore their increase implies high rates of investment that improves economic growth. Real private investment shows a positive significant correlation with real GDP per capita (0.33), implying that a positive weak association between the two variables. This may be attributed

to fact that private investment is the engine of economic growth. It generates capital for economic growth through skills, technology and profits as a result it boosts the economic growth and thus the per capita GDP.

There is a weak negative correlation between real GDP per capita and human capital (0.11) and it is significant at 5% significance level. This can be explained by the low levels of the human development and cases of brain drain exhibited by the region as compared to the rest of the world. The regions slow economic growth, limits its ability to invest in human capital.

Real GDP per capita and openness exhibit a positive weak correlation (0.36) that is significant at 1% level. This means that openness contributes positively to real GDP per capita since open policies influence trade and investment and thus economic growth. The correlation between real GDP and terms of trade is negative weak (0.10) and significant at 5% level. This implies that terms of trade has a negative relationship with real GDP per capita. This may be as a result of unfavorable terms of trade. Unfavorable terms of trade will make a country lose in international trade and as a result the income levels in that country will fall.

It is shown that there is a moderate, positive correlation of (0.40) between compensation of employees and workers remittances and it is significant at 5% level. This implies a positive relationship between workers remittances and compensation of employees since when migrants move temporarily, it creates the likelihood to move permanently.

The correlation between workers remittances and real private investment is moderate positive (0.48) and significant at 5%. This implies workers remittances that positively associate with real private investment since influences savings thus the level of investment.

The correlation between real private investment and profit remittances is strong positive (0.65) and significant at 1% significance level. This means real private investment has positively relationship with profit remittances. Domestic investment creates confidence for more investors to venture in as it shows that the economic environment is conducive that therefore can attract foreign investors and thus more of profit remittances.

The correlation between real private investment and workers remittances is positive and moderate (0.48), significant at 5%. This implies a positive association between workers remittances and real private investment. This can be explained by the desire for permanent migrants to fulfill their motives to remit that is pure altruism and self-interest behavior. In

turn the households invest the remitted funds in human capital and other income generating projects like real estate in order to maximize benefits thus improving the welfare of recipient households.

Real private has positive weak correlation (0.39) with compensation of employees' remittances that is significant at 5%.This suggested a positive association between real private investment and compensation of remittances. This is because temporary migrants may be affected by return illusion. This may magnify their ability and intension to remit for investment to enhance prestige and political influence in the local community.

There is a positive, strong correlation between profit remittances and openness (0.69), significant at 1%. This implies that openness has a positive association with profit remittances, the higher the level of openness the more the profit remittances. A good economic environment that can enable high levels of profit remittances since it attracts more foreign investors, this increases the levels of profit remittances generated from foreign direct investment.

4.4 Panel Unit Root

Panel unit root test are essential since empirical work based on econometrics analysis assumes data is stationary. If data is non-stationary, estimating it will yield spurious results and thus invalid inferences. According to the Fisher type unit root conducted based on Phillips-Perron, all variables were found to be stationary at level except for human capital that was stationary at first difference. Before differencing, human capital had a p-value of 0.9981 which was greater than 0.05, implying the presence of a unit root. The variable became stationary after differing once to remove the unit with a P-value of 0.000. The results are presented in Table 4.3.

Table 4.3: Panel Unit Root Test

Variables	Fisher (Level)		Fisher (First Difference)		Order of Intergration
	Z-Statistic	P-value	Z-Statistic	P-value	
lnGDPPC	-4.5356	0.0000	-	-	I(0)
lnCE	-6.2807	0.0000	-	-	I(0)
lnWR	-4.1176	0.0000	-	-	I(0)
lnPR	-7.2835	0.0000	-	-	I(0)
lnRPI	-6.4145	0.0000	-	-	I(0)
lnHC	2.8976	0.9981	-8.6484	0.0000	I(1)
lnOP	-1.9357	0.0265	-	-	I(0)
lnTOT	-5.2949	0.0000	-	-	I(0)

4.5 Panel Co-integration

Granger (1988) and others have shown that two series are co-integrated if they are integrated of the same order but a linear combination is stationary. However, it requires that all variables must be of the same order of integration and that the order of integration of the dependent variable should not be higher than the order of integration of the explanatory variables. From the above unit root results, all variables were stationary at the level I (0) except for human capital which was stationary at the first difference I (1). Therefore, co-intergration test was not concluded instead system GMM model was estimated.

4.6 Results and Discussion

The simple ordinary least squares (OLS) regression tends to yield plausible parameters estimates in its attempt to control for unobserved heterogeneity and simultaneity, thus leading to biasness in the parameter estimates. In addition the application of GMM estimators which take first differences to eliminate unobserved country specific effect and the use of lagged instruments to correct for simultaneity in the first differenced equations tend to produce unsatisfactory results. This is as a result of weak instruments that can lead to large finite

sample biases (Blundell and Bond, 1998). The model therefore was estimated using system GMM which uses forward orthogonal deviations to overcome this problem. The results are presented on Table 4.4

Table 4.4: GMM Estimation Results

lnGDPPC	Coefficient	Robust Standard Error	z-Statistics	P-Value
lnCE	0.0251	0.0028	8.92	0.000
lnWR	0.0226	0.0099	2.29	0.022
lnPR	0.0401	0.0111	3.61	0.000
lnRPI	0.0494	0.0217	2.28	0.022
lnHC Level	0.1765	0.0411	4.29	0.000
lnOP Level	0.2553	0.0499	5.11	0.000
lnTOT Level	0.1366	0.0263	5.19	0.000
lnGDPPC L1	0.9841	0.0164	59.98	0.000
Constant	-0.0277	0.216	-0.13	0.898
Arrelano –Bond Autocorrelation Test		AR(1) -3.3755(0.0007)		
		AR(2) 1.0209(0.3073)		
Sargan Test of Over identification		Chi^2 (412) = 384.0515		
		Prob > Chi^2 = 0.8348		
Modified Wald Test for Groupwise Herosckedasity		Chi^2 (33) = 4653.27		
		Prob>Chi^2 = 0.000		
Pesaran's test of Cross sectional Dependence		= 11.566		
		Prob = 0.000		

4.6.1 Discussion of GMM Results

From Table 4.4, it is evident that compensation of employees and workers remittances have a positive effect on real per capita GDP.

The partial slope of real GDP per capita with respect to compensation of employees shows that a 1% increase in compensation of employees will result to 0.0251% increase in real GDP

per capita. The results are significant at 5% significance level. The coefficient is positive thus consistent with the economic theory but relatively high as compared to that of workers remittances. Compensation of employees' remittances is remitted by temporary migrants and they contribute more to real GDP per capita relative to workers remittances. This is because temporary migrants, given their shorter duration of stay, may tend to maximize the benefits of migration by remitting more so as to invest in order to access higher earnings streams when they are back. In addition, some studies such as Gorny and Kindler (2016) and Mahmud, (2016) have pointed out that temporary migrants take remitting as an obligation to their families and as a result they are extreme in remitting than permanent migrants.

The coefficient of workers' remittances with respect to real per capita GDP reveals that a 1% increase in workers remittances will lead to 0.0226% increase in real GDP per capita. These results are significant at 5% significance level. The coefficient has the expected positive sign and therefore it is consistent with economic theory. Workers remittances that are usually perceived to be permanent are a source of capital accumulation. They also tend to stimulate consumption levels of the recipients households hence this implies positive effects in the welfare of the households. According to OECD (2006), permanent migrants devote 2 to 6% of their expenditure on remittances.

Profit remittances have a positive coefficient with respect to real per capita GDP. This implies that 1% increase in profit remittances will lead to 0.0401% in real GDP per capita. This is consistent with economic theory and the effect is significant at 5%. This can be explained by the fact that when profits generated by FDI are repatriated foreign investors are attracted to invest more in the host country. This results to high levels of investment and thus the economy grows. These findings are comparable to those of Fayissa and Nsiah (2008) who found that 10% increase in remittances led to 0.3% increase in average per capita income. In addition Azam and Khan (2011) found that 1 unit increase in workers' remittances will result to 0.40 unit change in gross domestic product.

The coefficient of real private investment with respect to real GDP per capita is positive and significant at 5%. This implies that 1% increase in real private investment will result to 0.0491% increase in real GDP per capita. The results are consistent with economic theory. Investment is necessary to increase productivity and to gear up the economies towards high levels of social and economic development. The results conform to findings of Fayissa and

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Nsiah (2008) who found that a 10% increase in real private investment will increase average per capita income by 1.06%.

The partial slope of real GDP per capita with respect to human capital is positive and significant at 5%. A 1% increase in human capital leads to 0.1765% increase in real GDP per capita. The findings are consistent with economic theory. Human capital enhances continued productivity. This positively impact on creativity, effort and research innovative economy, thus contributes to competitive investment.

On the other hand, the coefficient of openness is positive and significant at 5%. 1% increase in openness will lead to 0.2553% increase in real per capita GDP. These results are consistent with the economic theory. A positive relationship can be explained by the fact that Trade openness is essential for financial and trade reforms. It contribute to market efficiency, reduced distortions in price and fostered competiveness, thus promoting capital and expansion of exports in the global market. The findings can be compared to Yeboah *et al.* (2012) that 1% increase in openness results to an increase of 0.69% in GDP per capita.

The partial slope of real GDP per capita with respect to terms of trade is positive and significant at 5%, implying 1% increase in terms of trade will improve real GDP per capita by 0.1366%. This is consistent with the economic theory. This implies that trade in SSA are becoming productive. The region continues to focus on promotion of dynamic products and in addition has opened up its markets to the global economy. As a result the share of exports in GDP has grown.

The coefficient for the lagged real GDP per capita with respect to real GDP per capita is positive and significant at 5%. A 1% increase in the lagged real GDP per capita will lead to 0.98% increase in its contemporaneous level. This explains that real GDP per capita has a way of feeding back on its past values. This can be explained by economic growth inertia where, economic growth keeps on improving because of the effect of past growth.

4.6.2 Panel Post Diagnostic Tests

Panel post diagnostic tests were conducted to ensure that the model was well specified and the economic problems that were found to be present were corrected accordingly to enhance consistent results.

The results of autocorrelation first process AR (1) indicated that the p-value (0.0007) is less than 0.050. This implies presence of first order autocorrelation. Second order process AR (2)

indicated that the p-value (0.3073) is greater than 0.050 and therefore, the null hypothesis that there is no autocorrelation is accepted using the second order process. According to Mileva (2007), AR (2) process in first difference is the most crucial since it detects autocorrelation in levels unlike the AR (1) in first difference that usually rejects the null hypothesis

These findings are consistent with the economic theory that, by construction in dynamic panel models, the residuals of the differenced equation possess serial correlation of first order (AR (1)). If the assumption of serial independence in the original errors is warranted, the differenced residuals should not exhibit significant second order autocorrelation (AR (2)) behavior. In a case where the AR (2) is significant, the second lags of endogenous variables would not be appropriate instruments for their current values (Baum, 2013).

The p-value of Sargan test (0.8345) is greater than 0.05, and as such the null hypothesis that the over identifying restrictions are valid is accepted. This means that the instruments were valid. The Sargan test reflects the goodness of fit of the model. According to Baum (2013), when using GMM estimation the R-squared is no more bounded between 0 and 1, there is no measure of goodness of fit except checking the validity of the instruments.

The p-value for modified Wald for group wise heteroscedasticity (0.0000) is less than 0.050, implying that the null hypothesis of homoscedasticity is rejected. The problem was therefore corrected using the robust standard errors.

The p-value for cross sectional dependence (0.000) is less than 0.050. This implies rejection of the null hypothesis that there is no cross sectional dependence. However the problem was corrected by using spatial error components that corrects for error spatial dependence. This was estimated by Driscoll and Kraay (1998) non parametric covariance matrix estimator which was implemented in STATA.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary, conclusion policy implications and areas of further research on effect of remittances on economic on the Sub-Saharan Africa.

5.2 Summary

This study focused on the effect of remittances on economic growth in Sub-Saharan African Countries over the period 1980-2015. The specific objectives were to examine the effect of employees' compensation remittances on economic growth, to determine the effect of workers remittances on economic growth, and to explore the effect of profit remittances on economic growth in SSA.

The study was based on neoclassical growth model since it recognizes the positive role of capital on economic growth. The study employed dynamic panel approach using system GMM approach to analyze the effect of remittances on economic growth of SSA. The estimated model was subjected to diagnostics tests and any violations detected were corrected accordingly. The results decisive and can be used to draw some essential recommendations for Sub Saharan African countries.

5.3 Conclusion

The study employed Fisher type unit root test based on Phillips-Perron and found variables estimated to be stationary at level except for human capital that was stationary at first difference.

The panel post diagnostics tests were tested and corrected accordingly to enhance consistent results: autocorrelation, heteroscedasticity, cross sectional dependence and over identification of restrictions.

The coefficient of compensation of employees with respect to real GDP per capita is positive and significant. Remittances send by temporary migrants are mainly spent for daily consumption purposes. However coefficient is relative high as compared to that of workers remittances. Remitting by permanent migrants is viewed as voluntary and a symbolic action while remitting by temporary migrants is an obligation to support their families.

Workers' remittances have a positive and significant effect on real GDP per capita. This can be explained by the fact that workers remittances are considered to be a permanent avenue of capital accumulation. They also tend to stimulate consumption levels of the recipients and as a result improve welfare of the households. However permanent migrants are influenced by the permanent settlement syndrome. They tend to spend just a small portion of their budgets on remittances as compared to temporary migrants who tend to be obligated to remit in order to maximize their opportunity abroad.

The partial slope of real GDP per capita with respect to profit remittances is positive and significant. Profit remittances obtained from FDI by the multinationals companies and other foreign investors are repatriated to their home country. It may be seen as a drain of resources from SSA but on the other hand the higher the remittances the more the FDI. Foreign direct investment come with economic benefits including good infrastructure, technology and improved human capital skills. This creates a good economic that attract foreign investment thus result to a gain of capital necessary for economic growth thus a positive effect on real GDP per capita in the long run.

5.4 Recommendations

From the findings on the specific objectives, compensation of employees' remittances effect on economic grow seem to be decisive and outstanding. The study therefore suggests that in order to maximize the beneficial impact, compensation of employees remittances should be redirected towards productive projects. This may include strengthening of good infrastructure which will help promote trade and enable ease access of services. In addition the governments can offer incentives for returning migrants who start or expand business establishments. This will promote investment out of remittances into productive sectors such as export processing zones.

In order to avail more remittances into formal channels, the governments can offer financial incentives in form of premium exchange rate, interest rates and tax breaks. In addition, regulation of informal intermediaries, lowering the transaction costs and other barriers to formal channels is also necessary to enhance smooth flow of remittances into formal channels.

The role of workers remittances on economic growth also seem to be important. The findings suggest that relevant government authorities in SSA countries need to formulate appropriate policies in order to stimulate additional workers remittances and efficient use of workers

remittances. The governments can create easy access to foreign currency accounts and foreign currency denominated bonds with permission to repatriate. This will stimulate remittances from migrants belonging to professional and high skilled categories who earn relatively higher income. It will also work better with the permanent migrants who have a greater probability of earning higher income.

The role of profit remittances on economic growth is more pronounced, the findings suggest that FDI as source of profit remittances should be encouraged. FDI boosts economic growth since it enhances a country to have a good environment for investment through improved economic infrastructures. Therefore the governments can invest in infrastructure in order to create a good environment for foreign investors.

On control variables, given the results indicated   positive effect on the coefficient of real private investment with respect to economic growth, the study suggest that policy makers to advise the governments offer more incentives for private investment through ensuring easy of doing business, easy access of capital as well as improving business infrastructure.

Human capital also has positive effect on economic growth. The study suggests that a lot needs to be done by improving the quality of education. This is by offering trainings to impact on technical skills, knowledge and technology.

Given the positive role of openness on economic growth, policy makers are advised to make policies that will enhance market liberalization. This can be possible by eliminating unnecessary bureaucracies to effectively participate in trade.

Terms of trade also has a positive effect on economic growth, therefore, the study suggest that more efforts to be put in place in order to enhance export promotion. This is through identifying the potential sectors in which export development seem to thrive and take advantage of the huge international market resulting from economic integration. In addition, governments can offer incentives in the export industry to encourage production of export products beyond primary goods.

5.5 Areas of Further Research

This study investigated the effect of remittances on economic growth in SSA region but did not determine the factors that drive these remittances in SSA region. There is therefore a need to access these factors, so as to enable the policy makers identify the avenues through which they will stimulate additional remittances to the region. In addition, future researchers can

investigate at the effect of remittances in a more disaggregated level by considering bilateral remittances between countries. This will shed more light on which countries remit more thus help the policy makers to maximize the benefits of remittances to economic growth.

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Appendix I: Recipients of Remittances as a % of GDP in Rank
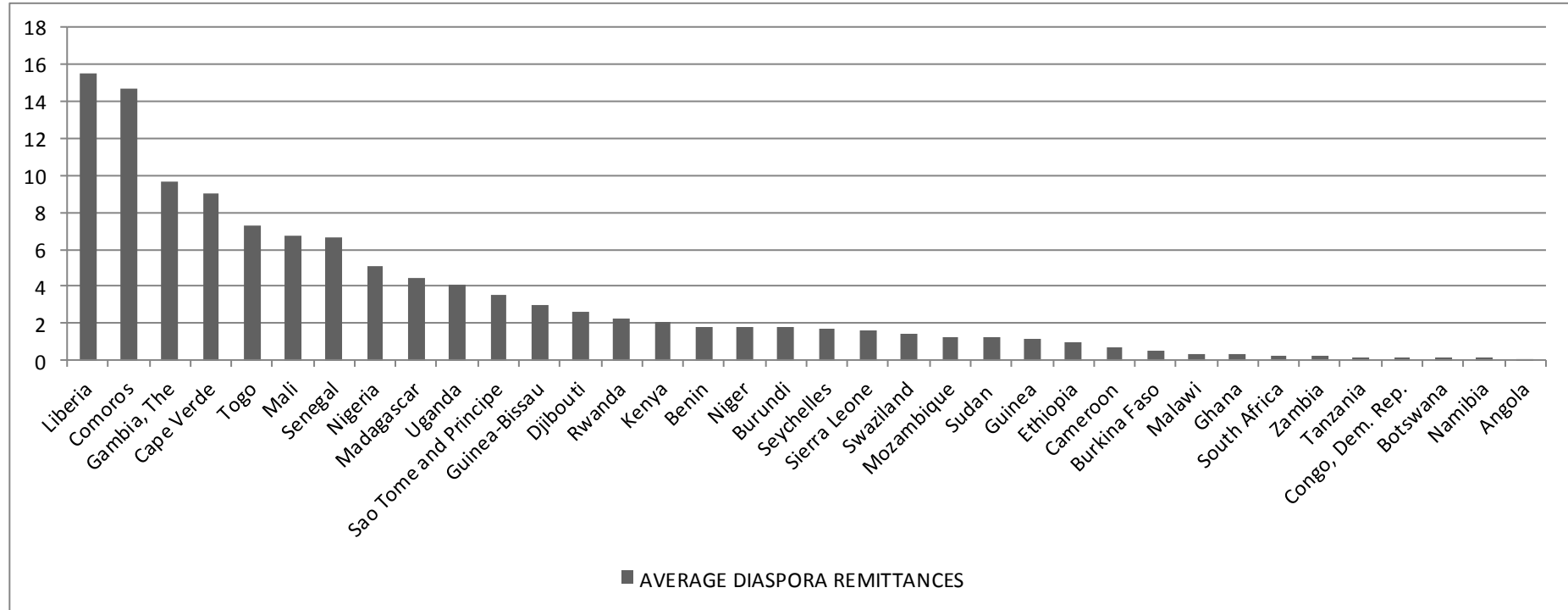
Source: Calculated using WDI Data

Appendix II: List of Countries included in Analysis

S/No.	Country	S/No.	Country
1.	Angola	19.	Madagascar
2.	Benin	20.	Malawi
3.	Botswana	21.	Mali
4.	Burkina Faso	22.	Mozambique
5.	Burundi	23.	Namibia
6.	Cameroon	24.	Niger
7.	Cape Verde	25.	Nigeria
8.	Comoros	26.	Rwanda
9.	Congo, Dem. Rep.	27.	Sao Tome and Principe
10.	Djibouti	28.	Senegal
11.	Ethiopia	29.	Seychelles
12.	Gambia, The	30.	Sierra Leone
13.	Ghana	31.	South Africa
14.	Guinea	32.	Swaziland
15.	Guinea-Bissau	33.	Tanzania
16.	Kenya	34.	Togo
17.	Lesotho	35.	Uganda
18.	Liberia	36.	Zambia