REMITTANCES, TOTAL FACTOR PRODUCTIVITY AND ECONOMIC DEVELOPMENT IN AFRICA.

GLORIA CLARISSA ODORKOR DZEHA

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by

GLORIA CLARISSA ODORKOR DZEHA

ID NO. 10155627

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DECLARATION

By submitting this dissertation, I, Gloria Clarissa Odorkor Dzeha, declare that this is an original work done by me and that this entire thesis has not been previously submitted anywhere or to any institution for the award of any qualification, and that I am the sole author of this thesis unless otherwise stated.

Gloria Clarissa Odorkor Dzeha June, 2017

10155627

CERTIFICATION

We hereby certify that this thesis was supervised in accordance with the procedures laid down by the University

SUPERVISORS

…… ……

PROFESSOR JOSHUA YINDENABA ABOR **DATE**

…… ……

DR. FESTUS EBO TURKSON **DATE**

…….. ……

DR. ELIKPLIMI KOMLA AGBLOYOR **DATE**

DEDICATIONS

I dedicate this work to the following: Rev. Eric Agbeko Komla Dzeha, Eyram Afua Dzeha, Elorm Ama Dzeha, Eric Edem Dzifa Dzeha, Paul Elikplim Dzeha, Gracelyn Awurayaa Ohenewa Adepa Gyimah and to my parents Mrs Vida Koshie Oddoye and Mr. Patrick Sowa Oddoye for their immense support, prayers and encouragement.

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Gloria Clarissa Odorkor Dzeha
University of Ghana Business School
Department of Finance
Ghana
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ABSTRACT

This study examines the implication of international migrants' remittance, total factor productivity (TFP) and economic development in Africa. It is based on three empirical papers. The first empirical chapter looks at the effect of international migrants' remittances on labour productivity and capital accumulation. In this study we conceptualise how remittances received in Africa could lead to labour productivity and capital accumulation. The study also tested the interactive effect of remittances and human capital on capital accumulation. The study employs a panel of twenty-five African countries across a twenty-three-year period (1990 – 2013) using the two-step generalised methods of moment estimator and finds that remittance promotes labour productivity. While the study does find evidence that remittances promote capital accumulation; it does show that the interactive effect of remittance and human capital largely impacts capital accumulation. Thus, remittance inflows only lead to capital accumulation if recipients are skilled and trained.

The second paper examines the effect of international migrants' remittance on Total Factor Productivity (TFP) within sampled African countries. The study first employs the output based non-parametric Malmquist productivity index- Data Envelope Analysis in a macroeconomic context to segregate the component of TFP into technical change, efficiency and TFP growth. In this context, the real GDP is the output that is produced by the countries; while the physical capital stock and labour are the set of inputs. The study further investigates the consequence of migrants' remittances on each component of TFP by the use of the Seemingly Unrelated Regression estimation technique on a panel of twenty-three African countries across a twenty-three-year period (1990 – 2013). The study shows that international migrants' remittances, although received by households, are a valuable source of capital that increases technical change (innovation) and spurs the growth in total factor productivity, but does not encourage efficiency. Confirming that, there is no doubt that

innovation cannot happen without money, migrants' remittance inflows are very important and significant in enabling recipients to bring their ideas to life through innovation. Remittances increase recipient households' purchasing power and create opportunities by making it easier for recipients to acquire simple tools and equipment that promote productive investments and lead to increase in productivity growth directly. International migrants' remittance inflows, through official channels, make available huge capital inflows that change the dynamics of productive investments through innovation and growth in technology. Hence the repercussions are that there is the need for governments to create enabling and congenial economic environments that will increase remittance inflows. A congenial economic environment will create opportunities for remittance-recipients to put these monies into economic activities that have far-reaching effects and enhance living standards.

The third paper also examines the effect of Total Factor Productivity (TFP) on human development contingent on the level of remittances in Africa. The study essentially employs the inequality-adjusted human development index as a proxy for human development in Africa and employs the system Generalised Methods of Moments (SGMM), with a set of data on a sample of twenty-one African countries over a five-year period (2010–2014) in a balanced panel. The findings of the study show that TFP has a negative effect on human development; meanwhile, human development is affected by remittances positively. However, the combined effect of TFP and remittances turns out to be positive, suggesting that countries that receive a high level of remittances are able to transform the negative impact of TFP on human development into a positive one. The implications are that, although remittances are received by households, their cumulative effect could drive total factor productivity to promote human development. As Africa's population continuous to grow astronomically, it becomes pragmatically assiduous for Africa to take advantage of its

increasingly active population in the diaspora seeking greener pastures and sending remittances to transform its human development levels in education attainment, poverty alleviation and increasing life expectancy.

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ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
AID	Foreign Aid
BoP	Balance of Payments
FDI	Foreign Direct Investment
GDF	Global Development Finance
GDP	Gross Domestic Product
GMM	Generalised Methods of Moment
HDI	Human Development Index
IMF	International Monetary Fund
IHDI	Inequality-Adjusted Human Development Index
LDCs	Less Developed Countries
MDG	Millennium Development Goals
MPI	Multidimensional Poverty Index
MTO	Money Transfer Operators
NELM	New Economics of Labour Migration
NPISH	Non-Profit Institutions Serving Household
ODA	Oversees Development Assistance
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
SGMM	System Generalised Methods of Moment
SSA	Sub-Saharan Africa
SUR	Seemingly Unrelated Regression
TFP	Total Factor Productivity
UN	United Nations
UNCTAD	United Nation Conference on Trade and Development
WB	The World Bank
WDI	World Development Indicators

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

This introductory section offers a comprehensive understanding into the framework of this thesis. It precisely includes the context of the thesis, the actual problem of the research and the inspiration for the study. It also presents the research questions and the purposes of the research. It includes the entire scope as well as the organization of this thesis.

1.1 Background to the Study

The African continent is still struggling with an ostensibly endless array of development challenges stemming basically from bad governance accompanied by civil war and political shakiness to endemic diseases, protracted food insecurity, widespread poverty and persistent low human development levels. Unfortunately, these occurrences have been prevalent in most African countries since the dawning of independence (African Development Bank report, September 2011).

This notwithstanding, over the past era, Africa has been growing at an unparalleled rate despite the sequential global food and financial crises. Even in recent times, Africa has experienced an unusual wave of political upheavals which persistently affect its growth and development. Although its economic growth has been burgeoning, it looks like it will take a long period of growth for Africa to make serious inroads into its poverty eradication agenda. Indeed, its experienced growth is not sufficient to fight against poverty. It becomes even more disturbing with regards to the pace of growth and the unequal patterns of growth among African countries. Growth has been narrowly concentrated in a few geographical areas and sectors. Too many Africans have been excluded from the benefits of the continent's growth. Attention must be directed at ensuring inclusive growth and targeting developmental agenda

which creates economic opportunities for all by ensuring equal access. On one hand, economic growth refers to the rise in the value of everything produced in the economy. It implies the yearly increase in the country's GDP or GNP, in percentage terms. It alludes to a considerable rise in the per-capita national product, over a period, i.e. the growth rate of increase in total output, must be greater than the population growth rate. On the other hand, economic development is defined as the increase in the economic wealth of a country or a particular area, for the welfare of its residents. Economic growth is often contrasted with economic development and it is only essential but not the only condition for economic development (Todaro, 1985).

The OECD productivity manual shows that it is TFP that is the real driver of growth, which signals and captures the contribution capacity of all factors of production needed to harvest progress within and among countries. Research shows that whereas labour and physical capital remain significant factors of growth within economies, 60% of growth is attributed to the level of Total Factor Productivity that economy (Hall & Jones, 1999; Easterly & Levine, 2001; Islam, 2003; Comin & Mark, 2006). Growth in TFP embodies the growth in total output that is not resulting from the growth in other factor inputs (Hornstein & Krusell, 1996). The quest of this thesis is to link Africa's economic development to its level of Total Factor Productivity (TFP) and to its international remittances received from its potential labour force in the diaspora.

Currently, there is a growing assurance about Africa's prospects in the global marketplace. Africa is endowed with the most abundant natural resources in the world of which many are yet to be tapped. This does not just include minerals and oil, but also bountiful possibilities for clean energy. Its natural resources endowment increases Africa's potential as an investment hub and a destination for foreign direct investment which is mostly accompanied/supplemented by access to new improved technologies and innovative

processes which are attributes of the TFP needed for its development. Emerging economies, particularly Brazil, India, South Africa and China have recognised this. Natural resources are not Africa's only advantage; benefits of a growing population could also be ridden upon to propel Africa's agenda.

Currently, Africa's unprecedented population growth makes it the world's youngest continent whiles in actual fact its Western counterpart countries are still shouldering the burden of ageing populations. The growth in population has led to the inequitable distribution of the national resource. Inequality has become more pronounced and more visible. With the rising youth unemployment, young Africans are finding themselves excluded from the labour market and the formal economy. Africa's bane of pervasive poverty coupled with its large population growth exacerbates its low human development levels and lack of productivity dexterity. This serves as an impetus for its youth to go in search of greener pastures through international migration. As always, it is true the future is cloaked in uncertainty, however, many of the issues and the trends that are being experienced now and are visibly staring Africa in the face and will determine Africa's future prospects. Properly and systematically analysing these issues and trends will help in the identification of the setbacks and prospects that lie ahead for Africa's development.

The loss of the potential labour force on the African continent is compensated with the massive inflow of remittance. Africa is recorded to be the second largest recipient of remittances after the Asian continent. However, gross differentials in these countries' economic status, in terms of human development levels, poverty, resource endowments, injustice, armed conflict and natural disasters have led to the displacement of millions of people across the globe, forcing people to look elsewhere for a living and Africa is no exception. Aubert & Xiande, (2002) explain that in as much as there exist differentials in general welfare among countries to the extent that wages remain almost three times more in

some countries than in others, migration will not stop and remittances will continue to flow. For instance, so far back as in 1980, Stark & Taylor, (1989) find that relatively deprived poor households in rural Mexico engaged in international migration more than richer households. The quest to break through poverty cycles for survival and to enjoy a better life gives the impetus to international migrants to find themselves jobs in countries which are outside of their home countries in order to make ends meet. In doing so, they send back monies in the form of remittances to their relatives they had left behind back home. The scope of flow of remittance, believed to be analogous to the increase in global migrants in dimensions, has aroused the curiosity and interest in researchers, policymakers and social scientists alike in the subject area.

Remittances undoubtedly make available substantial flows of funds which are considered highly necessary to support people living in less privileged areas. Ultimately, the cumulative effect is that remittances enhance the flow of capital into less endowed economies. Remittance has constitutes a strategic courier of funds for development. To achieve the Millennium Development Goals (MDGs) it will require a significant allocation of capitals including the flow of aid and migrants' remittances, among others, to developing countries (Gnangnon, 2013).

The role of international remittance has remained academically contentious in recent times. Some development economist including Stahl & Arnold (1986) and Massey, Arango, Hugo, Kouaouci, Pellegrino & Taylor (1998) appear to approve generally the good justifications in accepting as true that, remittances are key and vital in the process of socio-economic growth and progress in assisting recipient economies in their poverty mitigation agenda as well as minimising the balance of payment glitches. It is widely acknowledged that remittances constitute priceless capital that flows in, for consumption and for the provision of jobs and businesses in many emerging economies (Taylor, 1992; Brown, 1994; Adams, 1998).

In fact, international remittances have highlighted welfare-enhancing benefits to recipients' households, as well as impacting the macroeconomy as a whole. Remittances reduce the levels and rates of poverty (Adams & Page, 2005; Gupta, Pattillo, & Wagh, 2009) and decrease instability in consumption patterns by compensating for inadequate incomes of recipients (see for example Chami, Fullenkamp, & Jahjah, 2003; Chami, Hakura, & Montiel, 2009; International Monetary Fund (IMF), 2005; World Bank, 2006); thus it increases consumption expenditure and expand general income and the revenue base of recipients and receiving countries (Chami, Cosimano & Gapen 2006). Remittances invariably has direct and unswerving influence on progress in economic outcomes by increasing revenue base from taxes on payment on goods and services consume (Chami et al., 2009), and their impact is progressive on the well-being of the economy, dependent on key elements, including the reliable and effective governance system, sound administrative procedures and good financial systems (Catrinescu, Leon-Ledesma, Piracha, & Quillin; 2009). Despite these benefits, a school of thought also believes that remittances are basically household receipts hence they do not benefit the macroeconomy.

While empirical literature looks at the growth effect of remittance, it is important to establish that there could be economic growth without economic development. It is important to establish that if the remittance received in an economy will have a far-reaching effect, there is the need for that economy to exhibit characteristics such as innovativeness and efficiency which lead to productivity. Productivity prowess within the economy allows remittance recipients to apply the remittance more efficiently and effectively enough to lead to economic development. Drifting towards inclusive development warrants that we employ the remittance productively.

1.2 The Research Problem

It is expedient to re-examine Africa's situation in view of the fact that it is plagued with relatively deprived and poor households, who live mainly in the rural areas. Africa's economic growth seems to be merely a growth in output figures and has not really precipitated into development which affects the social wellbeing of its inhabitants. The Multidimensional Poverty Index (MPI) based on 2003 to 2014 data indicate that 75.3% of Africa as a whole, is mainly rural, compared to Sub Saharan Africa of 85.8% rural (Alkire, Jindra, Robles, & Vaz, 2016). This signifies an even greater probability of a higher propensity for these poor inhabitants to undertake international migration, as compared to richer households. The occurrence of international migration is usually analogous to huge remittance inflows from the diaspora to the home country, with Africa recording huge remittance inflows (Migration and Development Outlook, 2015). "Over half (54%) of people in the African countries' populace suffer from multidimensional poverty: 544 million people endure multidimensional poverty (MPI) in 46 countries analysed in the region. Among 35 countries where changes in poverty over time were analysed, 30 of them have reduced poverty significantly with Rwanda having an astronomical performance" as quoted in the Migration and Remittance Factbook (2016).

Although the MPI recorded remarkable declines in some unsuspected African countries even faster than Rwanda, there exists abject poverty within other countries. The fastest MPI decrease was found in Likouala in the Republic of the Congo (Alkire, Jindra, Robles, & Vaz, 2016).

Poverty looks very dissimilar in different parts of the African continent. While poverty in East Africa, related to low living standards resulting from scarcity and lack, the principal worries in West Africa is child mortality and lack of education. Unfortunately, the deficiencies distressing poor people with the highest share of MPI in Africa are cooking fuel,

electricity and sanitation. More people tend to suffer from severe poverty than $1.90/day poverty. Yet nine vital concessions, where poverty as a result of low income exceeds MPI, are in Africa. Another important fact that is worth noting is that in East Africa, multidimensional poor people outnumber those in West Africa. The region that records the least poverty is North Africa. The number of people who are poor reduced in twelve countries, and in eighteen countries, though the occurrence of MPI went down drastically, growth in population exacerbated the number of poor people on the whole. These factors analysed puts a lot of pressure on residents to look elsewhere for greener pastures.

Cumulatively, remittances revenues form a vital percentage of the 'Net Official Flows' (NOF) which follows 'Foreign Direct Investment' (FDI) directly. Remittances make important resource as external finance for developing countries, including most African countries. Remittances are expected to have a number of observable benefits to Africa. Although remittances constitute a significant share of the GDP growth in most countries, output growth factors vary from one country to another and are principally identified to account for the developmental disparity among countries. Comin & Mark, (2006), however, show that TFP growth accounts for cross-country growth differences. The general quest of this thesis is to ascertain the effect of remittance on economic development through the transmission mechanism of TFP growth.

The apprehension of Africa's sluggish development raises a lot of notional questions as to how remittances could be associated with growth in human capital and physical capital. Clearly, the developmental gap between the industrialised and the less developed economies continues to widen. Furthermore, in the interim, governments of African countries seem clueless as to preventing their increasing and energetic young population from migrating to developed countries where they anticipate better welfare and social systems as well as higher remuneration and better conditions of work.

The quest to examine the implications of these massive inflows of remittances will be of great importance to authorities' in charge of policy making as well as those in charge of implementation in the formulation of the policies and the measures for its successful implementation. Seeing that it is the Total Factor Productivity that explains growth differentials among countries and also accounts for growth and development within economies, it is expedient to investigate the implication of remittances from migrants' on TFP in effecting development in Africa. While several studies on remittance pay attention to economic growth which basically measures output growth, growth does not necessarily translate into developmental dimensions of life. This study particularly departs from all other studies (Adenutsi, 2010; Senbetta, 2013; Fayissah & Nsiah, 2014; Mamun, Kazi, Gazi & Muhammad, 2015) by viewing economic development through the lenses of human development.

This study is novel and contributes to extant literature and method on remittance studies in several regards. It provides evidence that international migrants' remittance inflows into Africa increase labour productivity. The study further adds to the literature by showing that remittances do not directly lead to capital accumulation. However, it adds that remittances lead to capital accumulation if recipients are skilled and trained.

The study contributes to the methods in remittances studies by decomposing TFP into technical change, efficiency and TFP growth and examines the effect of remittance on the various components of TFP. In contributing to the method the most important of all is the use of the 'inequality–adjusted human development index' as a proxy for assessing human development (IHDI). The use of the IHDI reveals a vivid distinction between countries' levels of human development and is a novel contribution to methods and measurement.

1.3 Research Objectives

This thesis aims at unravelling the empirical implications of international remittance for Total Factor Productivity and economic development in Africa. More specifically, on the one hand, this study seeks to establish how remittances impact labour productivity and capital accumulation and on the other hand it aims to show how remittance impacts on the components of Total Factor Productivity. Finally, the study examines how remittances serve as conduits that affect Total Factor Productivity to impact human development in Africa. The specific goals of this thesis are

i. to investigate the effect of remittances on labour productivity and capital accumulation in Africa.
ii. to ascertain the impact of remittances on the constituents of TFP (technical change, efficiency and TFP growth) in Africa
iii. to examine the effect of Total Factor Productivity on human development with remittances as a conduit.

1.4 Research Questions

This thesis seeks to answer these research questions including:

i. Do remittance receipts lead to capital accumulation?
ii. Are remittances used to acquire skills and training leading to labour productivity?
iii. Will remittances impact capital accumulation differently if recipients of remittances are skilled?
iv. Will remittance affect the components of Total Factor Productivity (technical change, efficiency, TFP growth) differently?
v. To what extent will remittances serve as conduits through which TFP growth impact human development?

1.5 Significance of the Study

The significance of the study is diverse. Indeed, if international migrant remittances have the tendency of inducing moral hazard problems as purported, (Gubert, 2000; Ebeke, 2012;) then accordingly, it has the tendency to downplay the growth effect of Total Factor Productivity (TFP) and hence reduce economic development thus this study examines how this effect plays out in Africa by elucidating on the true impact of remittance on TFP which in effect affects economic development. This study clarifies how migrants remittances received are either consumed or invested. It also reveals the effects remittances have if invested in human capital formation or physical accumulation and the far-reaching effects of this on labour productivity and capital accumulation.

This study is important because it clearly shows how Africa could depend on 'international migrants' remittances' as a significant additional 'source of income to poor households' at the micro level that could be employed in improving human capital development, physical capital accumulation, consumption and in improving living standards, which all have a major multiplier effect on aggregate demands and output levels. Migrants' remittances cumulatively provide a huge source of developmental capital at the broader economy, as purported in the Monterrey, 2002 consensus. This study, therefore, provides policymakers with important insight into the effect of remittance on economic development and the way forward in their policy directives with regards to remittances.

1.6 Organisation of the Study.

The entire study is divided into six chapters. Chapter one includes the background to the study. It also states the problem and sets out the objectives for the entire study. The Chapter includes the significance of the study as well as how the study is organised. Chapter Two provides the stylised facts, and a review of the concepts and theories of migrants' remittance, Total Factor Productivity and economic development. It specifies the main arguments on

remittance effect on economic development via Total Factor Productivity. It also indicates the macro and micro empirical studies on remittance and economic development. Chapter Three is the first paper of this study, titled, "Do Remittances Matter in Labour Productivity and Capital Accumulation"? In accordance with objective one, the paper study's the contribution of migrant's remittances to labour productivity and capital accumulation in Africa is examined. In this paper, a conceptual framework was developed to explain how migrants' remittances are linked to labour productivity and capital accumulation. The study further investigated the difference remittances will make on labour productivity in countries rich in natural resources and in also countries with high life expectancy. Again, in this chapter, the study shows the effect remittances will have on capital accumulation if the recipients of remittances are educated. Chapter Four seeks to address objective two of this study. It is titled "Will Remittances into Africa Avail for Productivity Growth"? In order to indicate what really accounts for the effect migrants' remittances have on Total Factor Productivity (TFP), TFP was decomposed into technical change, efficiency and Total Factor Productivity growth. The decomposition was done by employing the output based non-parametric Malmquist Productivity index- Data Envelope Analysis in a macroeconomic context. In this study, the real GDP is the output which is produced by the countries while the 'physical capital stock' and labour are taken as the given inputs. And thereafter, the study employs the seemingly unrelated regression to regress remittance on each of the components. Chapter Five is the third paper that addresses the third objective and it is titled "Total Factor Productivity Growth and Human Development in Africa: The Role of Remittances". The study examines the effect of TFP on human development, with respect to the level of migrants' remittance inflows. Finally, chapter Six includes the summary, conclusions and recommendations. This chapter gives the summary of the major findings and draws the conclusions made on the research questions, objectives and it finally put forth policy

recommendations to stakeholders and policymakers. Suggestions for relevant areas for future research and other grey areas which this study could not explore are outlined in this chapter.

1.7 Summary

In summary, the chapter provided the overall introduction to the study by offering an extensive viewpoint and the inspiration for the study; specifically, it gives the background of the study and states the problem of the research. The essential impetus for this study is that there is the need to test empirically whether the massive inflow of international remittance has contributed to economic development in Africa, labour productivity and capital accumulation. Furthermore, the study examines how remittances impact technical change (innovation), efficiency and TFP growth. Finally, the study examines how migrants' remittance serves as a conduit to impact TFP and affect human development in Africa.

1.8 The distinctiveness of the thesis and contribution to the literature

This thesis is distinct from previous studies in a number of respects: It conceptualises and empirically tests how international migrants' remittance leads to labour productivity and capital accumulation in Africa. It decomposes total factor productivity into three component parts and examines the effect of remittances on these components

Develops a conceptual framework and empirically tests how remittances trigger total factor productivity (TFP) to positively impact human development. It investigates the impact of remittances on economic development (inequality-adjusted human development index) and not just growth.

Conceptual and empirical contribution

Empirically, the thesis contributes by investigating how remittance affects labour productivity and capital accumulation and how remittances affect human development through TFP. The thesis develops a conceptual framework on how remittance affects labour productivity and capital accumulation and also how remittances affect human development via TFP

It further adds to the empirics by showing that if remittances are received by educated persons it leads largely to capital accumulation. It links remittances directly to the components of TFP and methodologically, it implements the Malmquist Productivity index and the SURE in the remittance literature.

Contribution to method

The thesis decomposes TFP using the Malmquist Productivity index- DEA and applied remittance to each component. The thesis applies panel estimations such as SGMM and SURE to the remittance literature. It uses the inequality-adjusted human development index to measure human development and not just growth

CHAPTER TWO

STYLISED FACTS, THEORIES AND EMPIRICAL LITERATURE

2.0 Introduction

In this chapter, the study examines some stylised fact with regards to the funding needs of Africa in the framework of the 'Agenda 2063' to enhancing the Sustainable Development Goals in Africa. It then highlights Africa's increasing financing prerequisites and the modifications in the 'development finance outlook of Africa'. This chapter additionally outlines the vital nature of remittances necessary for funding Africa's 'Developmental Agenda'. Furthermore, it explains concepts of remittance and summarises some theories of remittances, Total Factor Productivity (TFP) and development. This chapter concludes with a discussion on some empirical work on both macro and micro studies on remittance and development.

2.1 Stylised Facts

2.1.1 Africa's Developmental Financing Gap

The Economic Development in Africa Report (2016) records the agreement reached by the international community to adopt the Sustainable Development Goals in September 2015. In the same disposition, African member states pledged themselves to the execution of 'national and regional development agenda, over the next 15 years'. The main essence of executing these programs is to enable Africa pledge to push forward to the achievement of seventeen Sustainable Development Goals and one hundred and sixty-nine targets. This obviously compared with the 'eight Millennium Development Goals' and twenty-one targets, is relatively more determined in its developmental effort and hence will require far more all-embracing financial resources as purported by 'Economic Development in Africa Report (2016)'.

The financial resource needs for sustainable development in Africa remains in an indeterminate state as a result of differing complexity in scope and differences in methodologies as well as underlying assumptions employed in the estimation poses difficulties in the making of a direct comparison. For instance, Schmidt-Traub (2015) finds that in total, 'the incremental costs of financing Africa's Sustainable Development Goals may amount to $614 billion–$638 billion per year' which includes 'estimates for all low-income countries of $269 billion–$279 billion per year and lower middle-income countries of $345 billion–$359 billion per year' as reported in the Economic Development in Africa Report, (2016).

Meanwhile, Chinzana, Kedir & Sandjong (2015) prove that to end Poverty- by 2030, Africa must work hard at attaining a GDP growth rate of 16.6 per cent per year from 2015–2030. This will help to realise the first Goal. This means that Africa will require additional levels of investment to achieve this Goal, assuming that savings, ODA and FDI remain at its levels currently. Base on the level of nominal GDP in 2015 in Africa, they show that, across subregions and individual countries' levels of development, there must be a corresponding 'investment–GDP ratio of 87.5 per cent per year', which is equivalent to '$1.7 trillion and a financing gap–GDP ratio of 65.6 per cent per year' which is equal to $1.2 trillion' (Economic Development in Africa Report, 2016).

While the World Bank (2012), approximates the 'infrastructural investment need to amount to $93 billion per year in Africa', UNCTAD's initial projections suggest that, to achieve the 'Sustainable Development Goals', a $5 trillion–$7 trillion per year for 15-year delivery period should be invested globally (UNCTAD, 2014). More seriously, it is anticipated that to provide fundamental infrastructure, about $3.3 trillion–$4.5 trillion per year must be invested in key sectors of developing economies. Meanwhile, the average involvement of the private

sector in current infrastructure investment is lower or lacking in unindustrialized economies as compared to industrialised ones. (African Development Bank, 2010).

The Economic Development on Africa Reports, (2016), expresses that the deployment of domestic capital will not suffice for resolving the funding needs of Africa completely. The intricacy of the developmental challenges in Africa worsens the funding needs for its development. This further deepens the harshness and woes of Africa's inabilities and limitations. One of the main findings in the Economic Development Report, 2016 is that Africa must invest an amount of $600 billion - $1.2 trillion per year in order to fund and achieve its 'Sustainable Development Goals' (Chinzana et al., 2015; Schmidt-Traub, 2015; UNCTAD, 2014). Africa will only be able to raise 50% of the $93 billion as the cost of its Infrastructural need.

Currently, the conventional ODA, which significantly provided developmental finance for Africa's need has not yielded such valuable benefits, due to its reduction in amount as compared to total external inflows. Indeed lately, official development assistance into Africa shrank from 39.4 per cent in 2000 to 27.6 per cent in 2013. Unavoidably, it is ideal for African countries to pull additional unconventional sources of finance as a supplement to its fiscal resources and domestic savings in view of the fact that the usual Official Development Assistance rolled out by donor countries, especially to the least developed countries, which are mostly in Africa has been scaled back in real terms (UNCTAD, 2015a). Africa faces substantial developmental progress setbacks. In specific terms, the small size of Africa's domestic markets and inadequate job opportunities have a greater implication on the pursuit for seeking greener pastures abroad thus, largely dependent on remittances from abroad as compared to other countries. In a rapidly evolving global milieu, Africa needs to be resourceful and proactive in seizing the opportunity of all its developing conditions. It needs policies that maximise its comparative advantage and bring about the necessary structural

changes in its economy. It needs to invest far more in its young people and in the hard and soft infrastructure required for growth.

2.1.2 Measurement of International Remittance

World Bank's "Migration and Remittances Fact Book", 2016, reports that over 250 million people, constitutes about 3.4 per cent of the world population, reside out of their home countries. Additionally the Migration and Development Brief 25, (2016) states 'that over thirty million African adults in the diaspora send approximately USD 40 billion to their dependants and other relations as well as local communities in their home countries within a year. The World Bank further argues that this figure exceeds half of the net of ODA received from all sources'. For most African economies, this amount also exceeds FDI. In countries where their economies are relatively weaker, remittances approximately exceed 50 per cent of their GDP's. Migration and its concomitant remittance flow have become two unavoidable variables that have captured the interest of researchers. It has to a considerable extent caught the attention of International bodies and organisation that have tried to assess the rate of migration and its concomitant remittance flows in its depth and magnitude, although there have been inconsistencies and inaccuracies in the measurements due to different data capturing methodologies.

The measurement of remittances has consistently proven to be perplexing to an economist as of the time of realisation of its vital role as an invaluable source of funding from the diaspora, for development about 25 years ago (Adenutsi, Aziakpono & Ocran, 2012; Adams & Page,2005; Ghosh,1997; 2006). The main explanations for the challenges in the measuring of remittances are that most of the inflows of remittance are underreported, as massive amounts are believed to be routed via unofficial sector (World Bank 2006a). Again, remittances in "small amount" are mostly overlooked and not counted because in many unindustrialized countries it is not obligatory to report remittances below certain amounts according to Gupta,

Pattillo & Wagh (2009:3). Furthermore, it could look like, in most poor countries, migrants find remitting home through the informal channels more suitable and attractive due to high illiteracy rates and illegal status, it is mostly expensive and perhaps more cumbersome and inappropriate for migrants to use the formal transmission routes than the unofficially unapproved channels. Also, the 'complexity in measuring migrants' remittances associated with the illegal migration is high among inhabitants of developing countries, and as a result, whilst data on migration generally if difficult to ascertain it is even a worse case in the data on remittances. Above all, statistical figures from banks are used to the neglect of analysis of remittance, channelled through informal routes such as Mobile Money Operators (MMO), post offices, and credit unions (de Luna Martinez, 2005). It is also well noted that the method and procedures for collating statistical data on remittance remain complex, difficult and uncertain as put forth by the World Bank (2006a). Adenutsi et al (2012), explain further that these challenges are attributable to certain factors such as: migrants having little or no education, lacking legal resident permit and lack of knowledge and understanding of the local dialect or customs' avoid paying of tax, patronise unofficial financial channels which are unreported' (World Bank,2006; Shelburne & Palacin, 2007:6).

Arvin and Lew, (2012) also find that it is even the increase in awareness of the significance of remittance that has given the impetus for an increased desire to better collection of data and proper documentation of remittance flows in recent years. They also attest that remittances are important and remarkable for larger stable and unstable economies like India as well as for poor countries like Somalia. They explain that in 2008, for instance, Indians in the diaspora sent $52 billion to their home countries. This figure is much larger than what the country collected in Foreign Direct Invest. Likewise, Somalia with their endemic political upheaval and economic disorder were able realised remittances of about 70 per cent of GDP from its citizens in the diaspora.

Campoy-Muñoz, Gutiérrez, & Hervás-Martínez, (2014) and Ratha, Eigen- Zucchi, Plaza, Wyss, & Yi, (2013) also admit on the premise of trend analyses that there is a persistent increase in this drift of an average of 8% in yearly growth rate adding that remittance flows is likely to reach over $700 billion worldwide by 2016 as surmised in the 2006 World Bank report. However, the caveat in this is that these are official figures and are likely to be played down as total remittances. This is due to the use of several informal, unofficial channels employed when remitting monies. This makes capturing of data on real inflows difficult and hence several amounts are never accounted for, most probably an increase of at least 50% over what has been documented must be considered (as cited in Ratha, 2009). This actually accounts for the difference in records by several International organisations.

For instance, the United Nations Population Division, (2013) reports that world migrants estimated between the periods of 1990 and 2013 grew from 154.2 million to 231.5 million. It is obvious that increased migration grew with a corresponding growth in the amount of remittance inflows. It is projected to have shot up from US$64 billion to US$549 billion (World Bank, 2013). This was seen to be an increase of over the US$401 billion in 2012 and exceeded the amount of official development assistance by three times. It also exceeded private capital flows received by developing countries by 1.5 times in that same year as well as US$328 billion in 2008. This is far in excess of aid from OECD countries with about $120 billion in that same year. Meanwhile, "World Bank's Migration and Development Brief" (April 2013), records a 5.3 per cent growth in remittances received from official sources into unindustrialized countries.

The Global Development Finance group of the World Bank, (2014) also show that remittances sent home from abroad to developing countries picked up to $436 billion despite deportations. They added that remittance inflows to these developing countries had amounted to $404 billion, representing 7.8 per cent more than in 2013. In 2016, this further rose to $516

billion as recorded in the latest issue of the brief. It further estimated that Global remittances from developed economies were about $581 billion in 2014, $542 billion in 2013 and $681 billion in 2016.

Currently evident from Table 2.1, from the Migration and Development Brief 26 April 2016, are figures of remittances received by various regions on the global. General remittance inflows to all regional blocks are increasing. Observably remittances inflows to Sub-Saharan Africa records the least compared to the other regions. East Asia and Pacific records the highest of remittance inflows. Global remittances are growing astronomically and Developing countries are expediently taking advantage of this increase to harness most these inflows for the bridging of their developmental financing gap.

Table 2.1: Remittance Flows to Developing Countries in $ billions (Estimates and Projections)

	2010	2013	2014	2015	2016e	2017f	2018f
Developing countries	331.7	416.6	429.9	431.6	447.9	465.7	484.7
East Asia and Pacific	94.1	113.4	121.8	127.0	131.0	135.5	140.3
Europe and Central Asia	31.4	47.7	43.4	34.6	36.3	38.3	40.3
Latin America and Caribbean	55.7	61.1	63.6	66.7	69.3	71.9	74.6
Middle-Eastand North Africa	38.9	48.8	50.8	50.3	51.6	53.0	54.5
South Asia	82	110.8	115.5	117.9	123.3	129.3	135.8
Sub Saharan Africa	29.7	34.7	34.8	35.2	36.4	37.7	39.1
World	460.5	573.0	592.0	581.6	603.2	626.4	651.3

Source: Migration and Development Brief 26, April, 2016 World Bank

Table 2.2, shows the general trend in the rate of growth in remittance inflows. Remittances increased in amount generally but at a decreasing rate of growth. Europe and Central Asia recorded the highest reduction in their remittance inflow growth rate. The rate of growth of inward remittances into developing countries reduced significantly to 0.4 per cent in 2015 from that of 3.2 per cent in 2014 and the 7.4 per cent per year of that recorded in 2010–13. Since the global financial predicament in 2008–2009, this is the least rate of remittance

growth recorded. The sluggish growth of the worth of remittances in USD in 2015 is mainly as a result of harsh economic environments which are noted as in chief remittance -source countries. This is worsening by the growth in value of the USD against their currencies (Migration and Development Brief 26 April, 2016).

Table 2.2: Growth Rate of Remittance in (Percent)

	2010	2013	2014	2015e	2016f	2017f	2018f
Developing countries	11.4	4.9	32.2	0.4	3.8	4	4.1
East Asia and Pacific	20	6.8	7.4	4.2	3.2	3.4	3.6
Europe and Central Asia	5.5	18.4	-9	-20.3	5.1	5.4	5.2
Latin America and Caribbean	2.6	2.3	4	4.8	3.9	3.8	3.8
Middle-East and North Africa	17.9	0.8	4	-0.9	2.6	2.7	2.8
South Asia	9.4	2.6	4.3	2	4.6	4.9	5.1
Sub Saharan Africa	8.3	1.1	0.2	1	3.4	3.7	3.7
World	8.4	5.3	3.3	-1.7	3.7	3.8	4

Source: Migration and Development Brief 26, April, 2016 World Bank

The rouble, for instance, lost value against the USD by 42 percent from the third quarter of 2014 to the third quarter of 2015 constituting a year, as well as by 16 percent in the euro. Again, the fall in the value of the rouble had a major effect on the value of remittances to Europe and Central Asia, in USD terms in view of the fact that large proportion of remittances to the Central Asian were from Russia. The fall in the value of the euro accounted for the 0.9 per cent fall in the USD rate of remittance inflows to the Middle East and North Africa. Also, this had a significant effect on remittance inflows into Latin America and the Caribbean as well as to Sub-Saharan Africa (Migration and Development Brief 26, 2016).

The impact of remittances inflow on recipient economies is absolutely an invaluable conduit to enhancing social well-being and general economic development. This is because remittance inflows could potentially influence productivity and growth in the economy of recipient countries. It has been found the potential of remittance into countries by far

surpasses the potential of ODA, and has been identified as more stable and counter-cyclical than private debt and portfolio equity flows. Again, remittances serve as a more assured source of foreign exchange, as against foreign inflows from exports as well as securing portions of payment on imports. Remittances do not create debts since they are directed and flow from extended families and societal groups instead of district assemblies and governments. This in effect, is categorised as debt free funding from the diaspora for developing nations, mainly for indigenes living in poorer regions of the world (Migration and Development Brief 26, 2016).

The World Bank report (April, 2014), cites that, in Nepal for instance, remittances amount to twice the revenues generated in the country accruing from exports of goods and services. In Sri Lanka as well as the Philippines they over 50 per cent and 38 per cent respectively. India recorded $70 billion in remittances alone as against the $65 billion generated from the country's services rendered in software exports business in 2013. Remittances received in Uganda were twice as much as in revenue from the country's coffee export. The depth of dimensions in remittance flow into various countries is thus attracting increasing attention due to its surge in volume and its effect on the recipient as well as source countries.

2.1.3 Level of Remittance in Africa

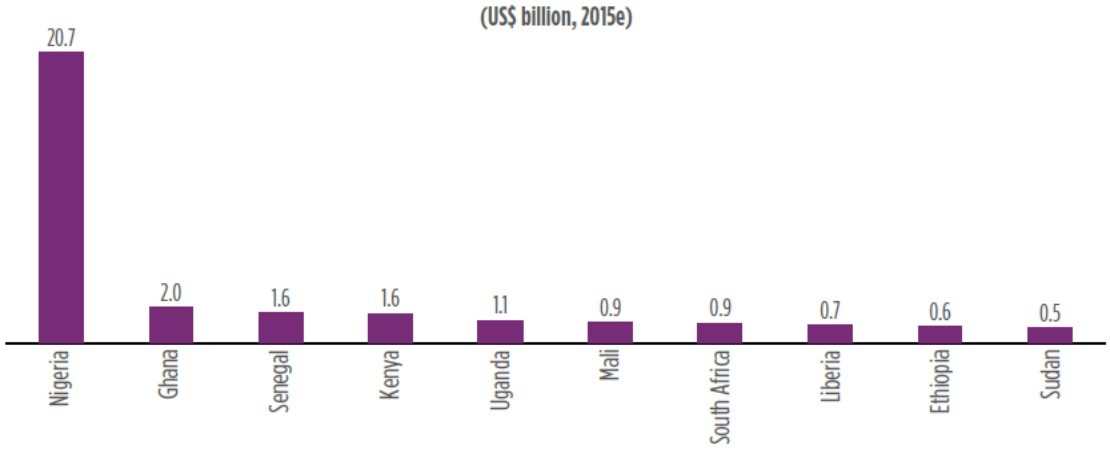
Remittances are sent by more than the 30 million Africans living outside of their home countries in the diaspora to their families back home. These remittances play important roles such as to increase household income to enable the financing of domestic needs (UNCTAD, 2013). In 1990, remittances received in Africa alone quadrupled, amounting to $40 billion in 2010. These figures are recorded only from official financial services sources hence it is most likely, to be grossly understated and under-reported of actual remittance figures. If authorities pay attention to remittances that flow from unofficial sources, total remittances could raise the total amount into Africa by half more (UNCTAD, 2013).

In Sub-Sahara Africa (SSA) alone, remittances received escalated from USD 1.398 billion in 1980 to USD 4.834 billion in 2000. By the year 2010, it shot-up astronomically to USD 21.101 billion and by 2014 remittances into the region heightened to USD 35 billion and continue to sky rocket.

Africa has the second highest remittance to GDP ratio following South Asia, as compared to other continents on the globe (Migration and Development Brief 25, 2016). Africa's readiness, coupled with its absorptive capacity and efficient usage of remittance receipts is paramount. More essentially, with regards to the important development financing role, remittances into Africa play an important role in enhancing its national economies.

The Migration and Development report (2016) by the World Bank show in figure 2.1 that Nigeria excelled as the topmost remittance - receiving country in Africa. The country harnessed USD 20.7 billion in remittance in 2015. This was an improvement over their previous year's receipt of USD 19.6 billion. Other top recipients include Ghana who attracted USD 2billion, Senegal received USD 1.6 billion, Kenya received USD 1.6 billion, Uganda received USD 1.1 billion, Mali received USD 0.9 billion, South Africa received USD 0.9 billion, Liberia received USD 0.7 billion, Ethiopia received USD 0.6 billion, Sudan received USD 0.5 billion, Lesotho received $0.5billion, and Togo received $302 million. This tends to increase Eurocurrencies within Africa, enhancing their balancing of payments and leads to the strengthening of the various countries' local currencies (Migration and Development Report, 2016).

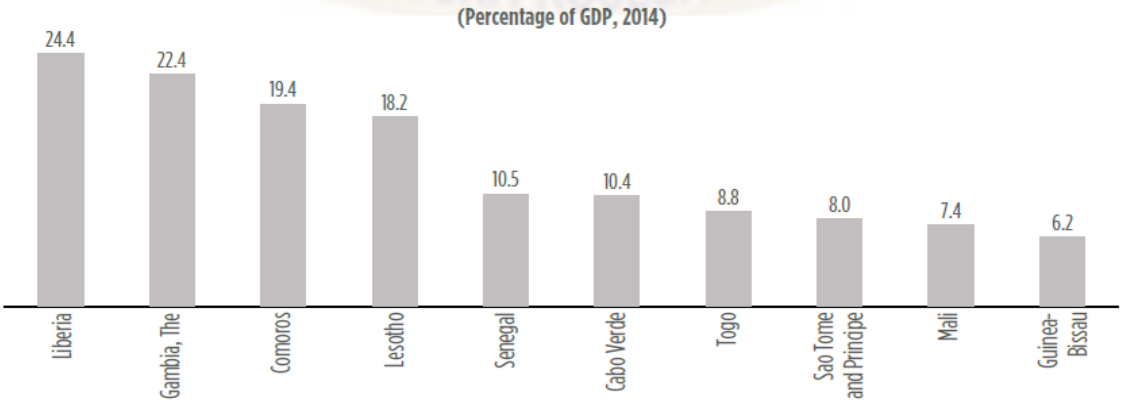
Figure 2.1: Level of Remittance into some African Remittances-Dependent Countries



Source: IMF World Bank, World Development Indicators and Staff estimates

Figure 2.2 shows some top remittance-receiving countries in 2014. The levels of remittance are as a proportion of the country's Gross Domestic Product. In Liberia, the level of remittances received made up to about 24.4% of GDP, Gambia recorded 22.4% as a portion of GDP, the Comoros recorded 19.4% as a portion of GDP, Lesotho recorded 18.2% as a portion of GDP, Senegal recorded 10.5% as a portion of GDP, Cape Verde recorded 10.4% as a portion of GDP, Togo recorded 8.8% as a portion of GDP, Sao Tome and Principe recorded 8.0% as a portion of GDP, Mali recorded 7.4% as a portion of GDP, Guinea-Bissau recorded 6.2% as a portion of GDP, Sudan recorded 6% as a portion of GDP, Nigeria recorded 6% as a portion of GDP, and Kenya recorded 5% as a portion of GDP.

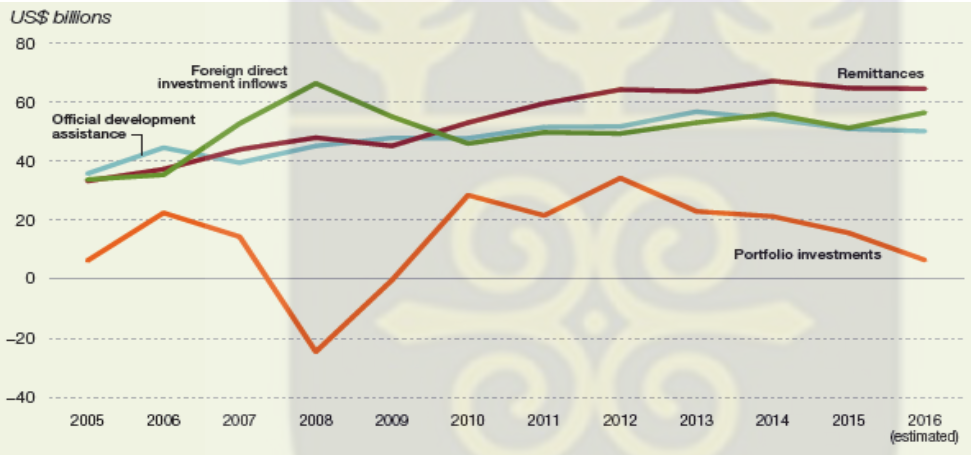
Figure 2.2: Africa countries remittances receipt as a percentage to GDP in 2014



Source: IMF World Bank, World Development Indicators and Staff estimates

In figure 2.3 Remittance inflows to Africa outpaced all other external capital flows. It is more stable than all other inflows. Indeed the official remittance receipts recorded in Africa make a significant percentage of its GDP. While on the one hand these massive flows of remittance funds are directed towards Africa from its Diasporas, on the other, Africa's ability to suck up and properly harness these funds and channel into productive investments to ameliorate poverty and enhance economic development is paramount. It is anticipated that this level of remittance inflows in Africa may have the potential to compel sustainable growth by capitalizing on the productive capacity of its receiving economies.

Figure 2.3 External capital flows to Africa



Source: African Development Bank, 2018

Within a growth accounting framework, the conduit through which remittances could influence sustained development is through the growth of TFP (Barajas, Chami, Fullenkamp, Gapen & Montiel, 2009). Osabuohien and Efobi (2013) hold that further research empirically is required as indeed there is agreement as to understanding that remittances encourage investments spurring into Africa's economic growth and development.

2.1.4 Total Factor Productivity

Productivity within an economy relates to the quantity of inputs, in terms of resources to output in goods and services. It gives an indication as to how effective a country utilises it's available the resources efficiently. It is often said of productivity, as not being everything, but in the long run, almost everything – it is an important determinant of living standards. The higher the productivity within an economy, the lower the unit costs of goods and services. This is passed on to consumers as cost savings in the form of affordable prices thus boosting increasing demand and invariably pushing up output levels and encouraging job opening and employment (Burnside, Eichenbaum & Rebelo 1995; King & Rebelo, 1999).

Key determinants of improved competitiveness and trade performance of firms in global markets are productivity growth and lower unit costs. Higher productivity is concomitant to efficiency. An increase in efficiency is an indication of harnessing much larger profits for business organisations. The increase in profits could be ploughed back as capital for business expansion and growth in the long term. In the presence of efficiency and productivity, firms are able to part off higher salaries and remunerations in emoluments to their workers and employees. The rippling effect is that works productivity levels shut up as they feel motivated. Encouraging productivity growth in a country means an increase in the gross national output. Increasing productivity encourages labour mobility from one industry to another. It further promotes the productivity of other businesses. For instance, increasing efficiency in farming could impact yield levels, create abundance and trigger an increase in efficiency in exports and efficiency in the food and beverage industry. It may boost supply to the rural and urban population. It will invariably increase the size of the economy and increase output, effect higher wages, increasing purchasing power and boosting consumption. This further leads to the generation of more tax revenue to pay for public goods for the

benefit of all and perhaps give freedom for tax cuts to businesses as purported by (Kydland & Prescott, 1982).

The OECD productivity manual signals the capacity of capturing all factors' contribution to output growth in an economy. Beyond all other factor inputs, TFP accounts for up to sixty per cent of growth within economies. Indeed TFP indicates the performance of economic variables. It is a pointer to the level of GDP growth, and growth in per capita income. It gives an indication of living standard with an economy (Hornstein & Krusell, 1996). Output growth factors differ from country to country and are principally identified as accounting for the developmental rate disparities among countries. Identifying the factors that account for the inequalities within and among nations, will be beneficial to tackling the important issues to ensure the picking up on progress and development of the economies. There is more than enough prose on the subject matter.

Robert Solow (1956), the father of modern neoclassical growth theory, kicked off the maiden argument by explaining that economic growth is indeed as result of upholding technical change (innovation), which is also a component of TFP in economic literature and since then, there have been aroused interest and curiosity in recent times in studies on the significance of Total Factor Productivity (TFP) in explaining the dissimilarity in economic growth between countries. Among documented studies evidencing the importance in TFP included: (King & Levine, 1994; Prescott, 1998; Hall & Jones, 1999; Easterly & Levine, 2001; and Islam 2003).

Comin & Mark, (2006) added that 'TFP essential since it does not only substantiate economic wellbeing as well as inequality in economic levels across the country, but also measures economic downturn, also volatility and business cycles. An increase in TFP suggests an increase technology, increase productivity and increasing returns on investments. TFP indeed encompasses all aspects to determine productivity level of physical input factors including

"technical change, human capital, vintage capital, development expenditures, economies of scale, government policies, international trade policies and remittances" etc. TFP is for economic growth measurement,

Africa's development rate as compared to the rest of the continents on the globe is a source of serious concern. The path to Africa's development remains blurred. As such African countries could rely on inflows from remittances as major additional funds to support expenditure to poor households and therefore improve consumption of households and their living standards which invariably have major rippling consequences on total demand for goods and services leading to an increase GDP.

These enormous benefits notwithstanding, remittance inflow may have the tendency to ignite moral hazards such as its tendency to increase household aggregate wealth leading to the reduction in labour availability, as households choose leisure over work, which is an opportunity cost of leisure. Substituting leisure for work shrinks productivity of labour and its supply, thus igniting the propensity for the scarcity of labour. The shortage of labour leads to increase in labour cost and rise in wages. Increase in labour cost invariably leads to an increase in the cost of producing goods and services. A rise in production costs will definitively cause shrinkage of the tradable sector, higher wages, and higher production costs reduction in total output as evident in El Salvador and Mexico by Acosta, 2006; Hanson 2007 respectively, and also (Latin America, Fajnzylber & Lopez 2008; and the Caribbean, Chami, Gapen & Cosimano, 2006). Gupta, Pattillo, & Wagh (2009: 112) admit that indeed, remittances can never be an auxiliary remedy for domestically contrived development effort even though remittances have progressive effects in poverty alleviation and development of the financial system in Sub-Saharan Africa.

The huge capital inflows for the receiving countries and their efficient utilization may lead to major accumulation of capital for investment in human development leading to enhancing and promoting labour productivity and spurring long-term economic growth and development in Africa.

Barajas et al. (2009) indicates that if remittances will be invested efficiently and effectively it will depend on the educational level and the skills level of the recipient taking the decision on the investment choice how the recipient decides to allocate remittances receive. Mostly the quality of investment choice may be dependent on the financial literacy and skills level of the recipient such that the excellence of investment may be conceded if the recipient's skill and abilities are less in relation to that of the finance institution' capital allocation. Hence remittance will take the form of 'remittance receipts' rather than capital flow. Again, the motive of the remitter in allocating the receipts as well as the percentage the remittance that will be invested and how much is applied for consumption purposes will all determine the effective use of the inflows.

It looks like Africa's development is indeed taking a long time, compared to rest of the continents on the globe. Some pertinent inkling thoughts with regards to the colossal remittance inflows into Africa are to explore the possibility of remittances' effect on human capital as well as on physical capital which is likely to lead to the growth in productivity of labour and the accumulation of savings. Remittances are perceived as safe capital for development, thus it may induce the possibility of affording the capital needed for technological progress and of efficiency of needed processes which invariably may affect Africa's development. Although these speculations may be dicey, as remittance is noted to have moral hazard problems as well as having a negative impact on economies, it could be observed, for instance, that while remittances reduce labour supply, its positive impact on

human capital by way encouraging high school enrolment, which hitherto declined as a result of poverty, cannot be over emphasised.

2.2 Concepts of Remittance

Goldring (2004) purports that the constellation of remitters, receivers, and mediating institutions has given rise to quite a few ideologies and diverse concepts underpinning international remittance.

The most important concept of remittance is put forth in the International Migration Outlook, 2006 which categorizes remittance into three classes by using the balance of payment manual including:

- "Compensations of employees, which describe the total income of workers living outside of their home country for less than one year as well as the value of any 'in-kind' aids which is found in the current account, subcategorized as "income" with item code 2310".
- 'Workers' remittances, on the other hand, is the worth of money that is transmitted or sent home from workers living outside of their home country for more than 12 months and found in the current account and subcategorized as "current transfers" with item code 2391'.
- 'Migrants' transfers, indicate the remaining capital of migrants who move to and from one country to another for purpose of work captured in the capital account and subcategorized "capital transfers" with item code 2431'.

Adenutsi et al. (2012) explain that though the broad measure of international remittance includes compensations of employees, workers' remittances, and Migrants' as well as currents transfers taking into account both direct and indirectly cross-border capital flow, the implication of remittances inflows for "financial dollarization", price volatility and economic

development, overall remittance should be seen as more relevant and appropriate for policy consideration. International remittances are mainly in foreign currency denominations hence its continuous flow into Africa with mostly 'softer currencies', it is more likely that households may prefer holding on to the 'harder currencies'. Dollarising is more likely inescapable in Africa due to higher rates of inflation as the real deposit interest rate is mainly low or negative.

Indeed, it is absolutely essential to measure international remittance in its broadest sense. This so because it will help decrease the extent of 'underestimating errors' in the recording of migrant remittance received in Africa. It is widely acknowledged that migrants from both poor and developing countries often never use official means to remit due to their unlawful residential status, lack of education, underdevelopment and low integration into the financial markets of their home countries to those of the countries in which they are domicile. It becomes unnecessarily problematic to monitor and collate from these informal channels through which these international remittances flow. The broad definition, therefore, is more inclusive and expressive of the definition of the recently approved constituent in the dimension of overall international remittances labelled as "total remittances and transfers to non-profit institutions serving households (NPISHs) in the 2009 edition of the IMF's International Transaction in Remittances: Guide for Compilers and Users as well as the 6th edition of IMF's Balance of Payments and International Investment Position Manual" and cited in Adenutsi et al (2012).

This notwithstanding, the measurement of international remittance in the broader sense does not still prove to be faultless. Setbacks confronting analysts using the broader definition is the inconsistencies in the recorded statistics on migrant transfer and on other current transfers in several evolving economies. Undeniably, recorded statistics on migrant transfer and other current transfer is rather rare as compared to statistics gathered on workers' remittance and

compensation of employees, again another reason the flow of migrant transfer and other current transfers are not as steadier inflow compared to worker's remittance and compensation of employees. Hence in analysing the motives of international remittance inflow, the workers' remittance and compensation of employee are observed to be more appropriate.

Table 2.3: IMF (2009) Definition and measurement of Remittance

Measurement of Concepts:					
I	II	III	IV	V	VI
Personal transfers	Net compensation of employees	Capital transfer between households	Social benefits	Current transfer to NPISHs	Capital Transfer to NPISHs
Total remittances and transfers to Non-profit institutions serving households (NPISHs)= Personal remittance + Total remittance + Current transfer to NPISHs + Capital transfer to NPISHs					
Total remittance (*TRem)* = Personal remittance + Social Benefits					
Remittance (*PRem)* = Personal transfers + Net compensation of employees + Capital transfer between households					

Definition of Core concept:

- **'Remittance**: is clearly explained as current and capital transfers (in cash and in a kind) between resident individuals and non-resident households plus Net compensation of employees gotten by persons working in countries working abroad outside of their home'.

- **'Total Remittances**: This includes all households earnings received from working out of their home country. Thus remittances plus social benefits. Instinctively, total remittances include earnings from persons working overseas on momentary basis incomes of persons residing overseas and social benefits received for working overseas'.
- **'Total remittances and Transfers to Non-profit institutions serving households** include Total remittance plus the sum of Current transfer and Capital transfer to Non-profit institutions serving households'.

Definition of Sub-Concepts:

- **"Personal Transfers** (now replaces workers remittance on the balance of payment sheet) is defined as comprising all current transfers in cash or in kind between resident households and non-resident households. Contrasting worker's remittance this fresh idea is grounded on neither employment nor migration status and thus resolves inconsistences accompanying the calculation of the former ideas which was linked strictly to residential status".

- **"Net compensation of employees** of employees is to embrace overall compensation of employees less taxes, social security contribution, and travel and passengers transportation related to short term employment and paid to resident entities in economies where they are not resident. Thus signifies their take-home compensation".

- **"Capital transfers** between households are the 'non-current' transfers in cash or in kind between resident and non-resident households".

- "**Social benefits** are the benefits paid under social security and pension funds".

- **'Current Transfers to Non-profit institutions serving households** constitute all current transfers from governments and enterprises in cash or in kind to NPISHs from sectors of the serving country which directly or indirectly benefit households in another economy (receiving economy)'.

- **"Current transfer to Non-profit institutions serving households** constitute all current transfers from governments and enterprises in cash or in kind to NPISHs from sectors of the another economy (receiving economy). It may include private and official donations, aids, sponsorship for education and cultural festivities including scholarships".

'The concept of Personal transfers and remittances based on the concept of residence rather than migration status has been adapted and Migrant transfer is no longer in the Balance of payment framework'.

Source: IMF (2009) Balance of Payments and Investment Position Manual, 6th Edition (BPM6); Cited in Adenutsi, 2014

In addition to this, there are six different concepts and definitions of international remittances which have been advanced in contemporary studies. First Adams (2010) sees remittances as money and properties that are transferred to households by people working and living outside of their home countries, either in urban areas or abroad. Secondly, Kapur, (2004:1) defines 'remittance broadly as a monetary source that flows into a country, arising from movement of

persons across international borders of a country. In the narrowest sense, remittances are explained as 'unreciprocated transfers' of monetary worth sent by migrants to family and friends. Mostly there is no privileges from the recipient. The third definition is from Fitzgerald (2010) and Goldring (2004) who identify technological remittances to signify the skills and technological know-how brought back into home countries by returning migrants. The fourth is what Sorensen (2004) posits as intra- and international remittances. Intra national remittance referring to the transfers by persons who do not migrate outside of their their countries of origin for instance urban-rural remittance, while international remittances point to the transfer by migrants across international borders, and the fifth, according to Pool (2007), it is political remittance which is associated with the changes in political uniqueness, is linked to migration. He further explains remittance as an economic phenomenon comprising monetary as well as 'in-kind' remittances. He subsequently categorized this into three which includes: 1. Family remittances sent to relations in the home country of emigrant, 2. Collective remittances sent collectively by ethnic associations in the Diaspora to home country or community for developmental projects and Investment remittances sent to the home country for investment and entrepreneurial purposes (also cited in Ngomba, 2010). The sixth is Boccagni and Decimo (2013) who push forth the notion of social remittances, claiming it to be the numerous ways in which migrants affect their home societies through the money they transfer and even far more. They conceptualise it generally to connote "the ideas, behaviours, identities and social capital that flow from sending to receiving country communities" (cited from Levitt, 1998: 926). It is worth noting however that, migrant remittance in whatever form it flows into a country is most vital in the role and impact in the recipient country making it far reaching and significant. This thesis adopts 'workers remittance' for the purposes of remittance data. It is of essence that the premise of remitting back home is surmised.

2.3 Theoretical Underpinnings of International Remittances

Theories that undergird remittance can be traced to Lucas & Stark (1985) who conjectured that the impulse of remitting by migrant workers is identified as pure altruism, pure self-interest and in-between these two extremes is the tempered altruism or enlightened self-interest termed insurance with proof from Botswana, as microeconomic factors of remittances. Beyond Lucas & Stark (1985), Rapoport & Docquier (2006) further explain that in addition to altruism and co-insurance, other motives as an exchange, strategic behaviour, inheritance, investment and mixed factors are as well the motivations associated with international migrants' remittance flows at the microeconomic level.

2.3.1 Pure Altruism

Lucas & Stark (1985) express that in pure altruism, remittances increase with decline in family income resulting from poverty; thus pure altruism is basically a selfless motive. Becker (1974) indeed argues that pure altruism is the greatest reason for remitting and it is basically driven by pure love and concern for the wellbeing and the improvement of the living standard of the recipients. An altruistic motive makes migrants choose to remit to maximize their lifetime utility that depends on their income minus remittances for the migration years, their own income in other years, and their family's income which includes remittances and their returns from remittances in a pure altruistic behaviour (Basu & Bang 2013). Thus the satisfaction of the migrant is derived from sending back home to relieve family relations of distressing economic condition. Indeed under altruistic motive, it an increase migrant income, a negative and an economic downturns and shocks in the migrant's native country, a reduction in living standards and a fall in real disposable income of the target receivers as well as the migrant intension to return to his /her native home after some time are these that positively influence inflows of international remittance driven by the Altruism motive. Thus the number of migrants in a particular target household should

inversely relate the regularity, the amount and size of the remittances per migrant received by the household over a period of time with respect to the migrant's perspective (Adenutsi 2010a).

2.3.2 Pure Self- Interest

The Pure Self- interest motive of remitting is positively related with family income and wealth back home which forms the basis for the aspiration to inherit. The motivation to remit is purely self-interest and it is connected to the prospective rewards which will be to the advantage of the would-be inheritor later on in life, as claimed by Straubhaar & Vadean (2006). Lucas & Stark (1985) who proposed the pure self- interest motive suggest that the motive is typically undergirded by three basic motives from the perspective of the remitting migrant (as cited in Adenutsi, 2014). These three are basically: the intention of the migrant to return back to his/her native home, for the purpose of accumulation of assets and for benefits derived through inheritance.

The migrants therefore act purely by stark self-interest, and the intention for remitting is basically because some time in the future, the migrant has an intention to return home and as a result it is deem needful to save at home in advance. Again, the migrant seeks to earn respect among family members and close companions. Again remitting with a pure self-interest drive occurs because the migrants mostly need someone to care for his/her assets and property left in the native country. Furthermore, the act of sending money intensifies the possibility that resources can be reassigned to the migrants later on in life on their arrival to their home country or the migrants would relish political and leadership power or simply nurture good associations with relations and healthily networking with people on the return to their home country. de la Briere, Sadoulet, de Janvry, & Lambert (2002) discover proof for this suggestion in Dominican Sierra. With regards to the migrants' aim at reappearing in their native homes, they engage a trustworthy close relative as agent who monitors capital-

intensive investment projects, such as the construction of an apartment, profit-making businesses, farming and other commercial enterprises (Bernheim, Shleifer & Summers, 1985; Cox, 1987). 'Rather than pure altruism where mostly negative circumstances at home and the number of households who have migrated out of their home countries, are the drivers of the positive impact on remittance inflows, also in a pure self-interest, stability and growth prospects in the migrant home country as well as democratic and accountable governance, low inflation, higher per capita income, good health care, and the possibility of improving the ways by which the private sector are able access cheaper bank credit by can confidently stimulate a migrant's desire to come back home and thereby motivating larger inflows remittance premise on self-interest (Adenutsi, 2010b).

2.3.3 Insurance

Lucas & Stark (1985) explain the insurance motive as a mixed motive of migrant remittance. The insurance motive is also said to be the Tempered altruism or enlightened self-interest denoting the less thrilling circumstances of pure altruism or pure self-interest. Depoo (2013) further explains the purpose of remitting is signalled by hidden contractual agreement, and that migrants will remit with an insurance motive due to inherent considerations that will allow both the migrant and the migrant family to derive mutual benefits from the migration. This form of agreement normally includes co-insurance, loan reimbursement, give-and-take of services and premeditated behaviour (Bernheim et al. 1985; Poirine, 1997; Agarwal & Horowitz, 2002; Amuedo-Dorantes & Pozo, 2006). The migrant could also face uncertainties in finding a job in the destination area and so there could be an inherent agreement amongst the migratory and his/her household to co-insure against uncertainties in both the origin and the destination areas. Indeed the insurance motive in remitting is as a result of the desire to protect against uncertainties that typifies the life of migrants' family in the source countries. Stark & Bloom, (1985), and Katz & Stark, (1986) again explain that in the insurance ideal,

the migrants' inspiration to send money is all the time virtually motivated by the desire to reward kinfolks who have rendered their support financially for the relocation of the migrants'.

For instance, money could be borrowed or put together at a cost to provide support, financially for the purposes of bearing the relocation expenses of a relative of a household to enable that family member migrate to a state where there is certain of employment and real incomes are assured and is comparatively higher. The migratory in compensation is look-up - to, to sending back home a portion of his or her wages to the family left behind to offset the obligations incurred while soliciting for funding for his or her trip. There after it is the family's expectation that remittance will continue to flow in to the family, especially in periods of economic shocks and downturns. The migrant could also agree with his or her family member who sponsored the trip, to bring abroad other economically active members of the households as a compensation of the sponsorship.

Clearly, from the earlier deliberations, on the one hand, at the household level, the uses of international migrants' remittances can be several and divers over a period of time. Russell, Jacobsen & William (1990) add that the use to which remittances could be put depends on the gender of the recipient. Besides, this Adenutsi (2010) adds that application of remittances could be based on 'the educational status of the recipient, nuptial status, size of household , age, level and consistency of wages, as well as the nature of occupational engagement that the recipient is in'. This and many personal characteristics impact the use to which remittance is put.

On the other hand, the decision to remit is complex, as motivation ranges from altruism to self-interest. The decision may be driven by the aspiration that the migrant eventually inherit, or by the desire to entrust the migrant's assets to relatives. Nevertheless, the volume of

remittances received inclines to decrease as the domestic wages of a family rises; it also decreases across time as migrants' connection to their family progressively wanes. And similarly, the decision for one family member to migrate may be the result of a family decision, with remittances being the mechanism for redistributing the gains to the whole family.

It is reasonable to assume that remittances directed by migrants to their relations back home help them to meet their basic needs and thus have an overall impact on poverty lessening (Adams& Page 2005). Yet, the microeconomic and macroeconomic impacts of remittances are not clear cut; neither is the extent to which these flows contribute to development. Remittances are traditionally perceived to be more than on consumption (Adams & Page, 2005). Invariably, the remittance effect on economic growth has never arrived at a single conclusion. While some researchers conclude that remittance cannot be considered as development finance due to its inability to propel growth, others find the contrary. No matter the reason for remittance inflows, there is much broader pecuniary and societal effect of remittances on both the 'receivers and senders' countries. Irrespective of the motive undergirding the remittance flow, it cannot be overemphasis that the basis of remitting have aided a massive flow of funds across the globe which, if properly harnessed, could augment capital available to less endowed countries for growth and development.

2.3.4 Theories of International Remittances and its Developmental Effect

The main theories of International migration identified and cited in Adenutsi, (2010b) are the 'Migration Optimism is otherwise referred to as "Developmentalist" idea put forth in the 1950's and 1960's by the neoclassical school of thoughts. Then again the Migration Pessimism which is mostly known as the "Historical Structural Dependency" school of thought put forth in the 1970's and 1980's. Furthermore, there is the Migration Pluralism which in modern day classified as the "New Economics of Labour Migration" (NELM) as

well as the Livelihood School. These theories have governed the methodologies in investigating the effect of cross border movements ever since the 1960's. These are employed in the deliberations and studies into migration and attendant remittance flows. This is basically so due to the lack of precise concept on international remittance in the framework of pecuniary development from a macroeconomic viewpoint (de Haas, 2005).

From the *Developmentalist* school of thought, within both developed countries which are considered 'labour-importing' and developing countries – 'labour-exporting', international migrant remittances have the capability of accelerating economic development. This is supported with the current migration dynamics of great South-North movement being recompensed with the huge of North-South. Observably, labour is relocated from 'capital-constrained' non-industrialised economies where labour is in abundance and cheaper, in excess of supply, to the 'labour-constrained' developed economies in which capital is in abundance and cheaper. Kindleberger (1965), Beijer (1970), Penninx (1982) and Stark et al. (1997) who are prominent proponent of the developmental approach are of the strong inclination that international migration and its concomitant migrant remittances contribute immensely and positively to the removal of bottlenecks and constraints in the production processes and investment glitches, narrow trade gap and raise income levels. The inflow of remittances as foreign exchange may remove the perennial balance of payment challenges and reduce foreign exchange volatility. Proponents are of the view that international migration is capable of increasing the global production and flow of goods and services as migration introduces and infuses efficiency, innovative processes, technological knowledge, modernity, information, attitudes, rationalisation and democratic ideas, all things being equal into new economies. The developmentalist adds that even when migrants fail to return back to their home country, their contribution to their native communities is huge, they sometimes directly support the financing of developmental project which may be mostly capital

intensive as well as indirectly through charitable organisation they belong to in the countries they live in abroad (Massey et al 1998).

Returnee migrants also bring entrepreneurial skills and sometimes become influential representatives for positive social change in governance. The long run effect of migration on developing countries is immense from their migrant nationals in the diaspora who otherwise would have been unemployed, engaging in social vices and being social menace and burdening the economy. Adenutsi, (2010b) indeed, therefore, admits that cross border movement involves a two-way progressive influence within the entire world-wide economy, the 'labour-importing' developed economies, with an abundant supply of workforce as a result of inward settlement of labour really lowers the cost involve in engaging labour, and then the 'labour-exporting' unindustrialized economies who experience the outward relocation of surplus labour and thereby lower the labour supply and increase the cost of hiring labour to achieve an equilibrium in the international labour market'.

The Migration-Pessimism also known as 'historical structural dependency' was indeed a watershed for developing and underdeveloped countries that experienced brain-drain, where international migrants migrated in search of greener pastures. The Structural Dependency School of the thought's ideology began in the 1970s after the economic and industrial restructuring, as a result of the global economic decline which led to unemployment stemming from the 1973 oil crisis. International migration drained developing and underdeveloped migrant-home countries of skilled labour. These migration-pessimist and remittance-pessimist argue that indeed international migration crowds out domestic produce, especially in the high brain drain economies which are underdeveloped and are into the production of tradable goods. As cited in Adenutsi (2010b), the "remittance-pessimistic" philosophers (Almeida,1973; Bhagwati, 1976; Lipton, 1980; Reichert,1981; Taylor, 1984; Rubenstein,1992) do not comprehend how remittance could effectively compensate for the

brain drain within those economies and claim that cross boarder movement indeed propels the "underdevelopment" disorders within unindustrialized economies through the depressing phenomenon in the capacities in terms of volumes of production and over-reliance, as inflows of remittance are certainly not sufficient enough to recompense for the loss of workforce exertions in emerging economies.

Other remittance-pessimist theorists such as Taylor, (1980), Entzinger, (1985), Lewis, (1986), are of the view that the developed countries relish all the gains, benefits and advantages of international migration. Developed countries gain access to cheap labour (international migrants), hire them and pay them meagre wages. These scanty wages are levied with high taxes and migrants are even charged high commissions on transferring these remittances back home. Invariably these remittances sent back to migrant home countries are so skimpy that it becomes insufficient to assist in the bridging of the developmental gap between the North and the South. Even more seriously, even if these remittance are received in large quantities, predictably, the multidimensional poverty nature in developing countries as in Africa, coupled with low income, it is challenging to avoid the consumption of remittances and not employed them into productive use. Adenutsi (2010b) adds that remittance are indeed being 'wasted' on 'chieftaincy rivalry and infighting, funerals, unprofitable commuting and the transport cost associated with it, festivals, financing tribal war and conflicts, engaging in leisure and vacations as well as other purchase of unprofitable goods and services. Russell (1986a, b) explains that even in the macro economy, remittances have the tendency of subverting the macro economy by igniting a demand-pull inflation (Appleyard, 1989; Rubenstein, 1992), which is characterised by high trade deficits in developing countries which are principally net importers of essential goods. Additionally, the proponents of remittance-pessimism suggest that, high income inequality is largely exacerbated as a result of migration and its concomitance remittance inflows. Certainly, poor households are

incapable of sending their relatives abroad (Lipton, 1980; Stahl, 1982). Ostensibly, over reliance on remittance at the macro level will impede governments' ability to embark upon sustainable economic growth projects. Again, thoughts are that remittances will increase massively in low-income countries and this definitely has the implication of kindling moral hazard problems in developing countries. Remittances are likely to awaken the love for leisure thereby reducing the work effort (Chami, Fullenkamp, & Jahjah 2005).

The New Economics of Labour Migration (NELM) is a more recent paradigm as put forth in Stark, (1978; 1991) and then again in (Stark & Bloom, 1985; Taylor, 1999; Bracking, 2003; Carling, 2004 and Robinson, 2004 and cited in Adenutsi, 2010b). The NELM is identified as the third school of thought and also known as the Transnational-migration remittance, based on the concept of Pluralism. The Pluralism ideology brings together the earlier mention schools of thoughts, the remittance-optimism and the remittance-pessimism. The NELM or the Pluralism school of thought focuses on how remittance coupled with socioeconomics linkages, connecting indigenous and international procedures of development (Levitt, 2001 cited in Adenutsi, 2010b). This concept goes beyond financial remittances alone, but also encompasses the flow of goods and service, new ideas, innovative processes that have great impacts on the basic social issues in the political frameworks of both the labour-importing and labour exporting countries according to (Datta, Mcllwaine, Wills, Evans, Herbert & May 2006). The New Economics of Labour Migration critically pry into how the impact of international migrant remittance affects and is entrenched in the very structure of an economy, it politics and the country's social and institutional organisation. The fundamental beneficial reasons of migrant remittances to household are that it increases disposable income and increases consumption of goods and services thus having a spill over effect on the national economy. This potentially improves aggregate demand and effective demand of goods and services which further stimulates domestic production (Skeldon, 2002; Ratha,

2003). This is the backbone of the "Neo-liberalist functionalist" philosophy communicates that movement of people as well as the reasons for such movements affects an entire family subsistence. That basically, their intention to relocate targets at receiving incomes, wages and accessing business start-up capitals for productive investment ensuring that at the household level both income and production risk are assured (Stark, 1978; 1991; Taylor, 1999; Stark & Levhari, 1982).

Increase in remittance inflows invariably resonant the bouncy of the capital markets back home and the growth of industries and infrastructural development (Billard, 2004). Vertovec (1999) show that certain characteristics and networks could be adopted transnationally between global migrants and migrant families in the home country which could lead to thorough reengineering of the "telecommunication infrastructure such as cellular networks, telephone and satellite", in migrants native country as migrants' send their monies via the formal financial sector'. The transnational-migrant remittance school of thought therefore do not pay attention to only how remittances bring about income inequality and differentiation among recipients, but it essentially devotes itself to prying into how international migrant remittance lead to poverty alleviation and socioeconomic transformation (Billard 2004; Carling, 2004). This actually stems from the NELM philosophy. The analysis of theories and most importantly the Transnational-migrant remittances undergirds the objectives for this thesis work.

2.3.5 Linking Remittance, Total Factor Productivity and Economic Development

Barajas, Chami, Fullenkamp, Gapen & Montiel (2009) examine the channels that link remittance and growth within a "growth accounting" framework, is a medium through which remittance receipts may affect growth. Barajas et al (2009) argue that the proper functioning of effective channels will invariably affect growth and this effect may either be positive or

negative on case by case bases. Remittances are, however, fungible thus may not be applied so as to yield the intended growth.

First, remittance may increase households' rate of accumulation of physical capital by easing domestic investment constraints, improves credibility of domestic investors in their quest to access capital. Increasing inflows of remittance has the potential of lowering, the cost of capital and interest payment in the domestic countries. It may serve as collateral for borrowing which may principally influence access to capital and encouraging domestic start-up businesses and investments and reduction in output volatility. Alternatively, if households' marginal propensity to consume is high, remittance receipts may not be channelled into investment to yield the expected growth. On the hind sights, perceiving remittances to perpetually flow in to recipients' may trigger and stimulate superfluous consumption rather than encouraging savings and investments. If this occurs then it is most likely that remittances will affect households' well-being positively but not essentially impacting on the aggregate economic progress.

Remittances inflows may stimulate investment in human capital by reducing the need for young members of recipient family to recklessly shun their official education to enable them work to subsidise the income of the household. Being in school may promote education and lead to skills acquisition. Skilled labour is likely to be more productive and hence enhancing efficiency in output growth although the effect on progress in the home, however, will be contingent on the recipients' successive contribution in the domestic workforce. Unfortunately, if the beneficial and progressive effects of the remittance receipt pushes its recipient to also further emigrate, then it follows that the expected increase in education as a result of remittance receipts will definitely be extinguish.

Secondly, remittance receipts may affect growth by their impact on the rate of progress of labour inputs and labour for participation. Chami et al (2003) argue that remittance may induce moral hazard problems making it easy for recipients of remittance to redirect incomes into the consumption of leisure and negative vacations. This results from the fact that these flows occur under purely information asymmetry which makes monitoring the application of the moneys exceedingly challenging due to the expanse of space between senders and receivers.

Thirdly, Solow (1957) entirely expresses that the progress and increase on overall output that is not explained by all other input factors can be accounted as due to TFP. Solow however further substantiate that it will be very difficult to sustain economic growth if it is solely due to increasing inputs and that an economy is only sustained by increasing TFP. Technology growth and efficiency are sub-sections of Total Factor Productivity. Barajas et al. (2009) adds that indeed if remittances investments are going to be efficient it will depend on the financial skills of the recipient making the investment decision, the quality of investment chosen, how the remittance resource is allocated would depend on the skills of the recipient.

2.4 Empirical Literature on the Developmental Effect of Remittance

Perhaps the colossal growth in international migrant remittances is the motivation for the upsurge of research, predominantly, in this issue. Fajnzylber & Lopez (2008) admit that the background of the occurrence of remittance flow differs across countries; as such its developmental impact and implications for policy direction normally changes in ways that still makes it essentially unfathomable. Maybe the far-reaching transformational effect of international migrant remittances on economic development has drawn policy makers, academics and researchers in the area of developmental finance and economics to give attention to the benefits that could be gleaned thereof. Other motivations for which research into the consequential effects of international migrant remittances, as another source of

development finance, have outdone other areas in research that are incongruent to all other forms of development finance. Remittances are capable of having a direct influence on all the fragmented levels of the recipient economy. The developmental implications of international migrants' remittance are a prior uncertain. Whilst in some of the literature, remittances have an invaluable positive impact on development; in other cases its detrimental effect is dire. It therefore becomes a matter of interest to pry into the notional viewpoints and the shortest linkages of international migrant remittance and economic development at the macro, the meso, and the micro levels.

2.4.1 Macro Level and Remittance Effect

International migrant remittances at the economy levels are an indispensable source of foreign "hard currencies". It shoots up the inflow of foreign capital in an economy making remittance recipient countries able to stabilise the country's macro economy through the reduction of its balance of payment and budget deficit challenges. Glytsos, (2002) show that with the tenacious glitches in the balance of trade in Less Developing Countries (LDCs), it is international migrant remittances that encourage the inflows of foreign exchange and substitute for the inadequacies of the limited effect of other foreign aids.

The inflows of 'hard' foreign currencies, as remittance, through the formal channel also normally have a positive effect on domestic currencies appreciation, thus reducing the transnational attractiveness of the merchandises produce on the local front (Mamun, Sohag, Uddin, & Shahbaz, 2015; Amuedo-Dorantes & Pozo, 2004; Chami et al., 2003). The increase in value of the domestic currency could push consumers in the local market to demand of foreign goods. These indeed create a reduction in the consumption of locally produced goods. This situation force domestic producers out of business in the long run, as their products are replaced by foreign products. Remittances therefore can potentially reduce the volume of local produce as well as the productive prowess of local labour force. Thus, the apparent gain

from remittances may itself, develop non-productivity for most of the countries. Indeed Glytos (2002) explains that, although remittances have a complex beneficial impact on development, as it increases the flows of foreign "hard currency "on the market, exhibiting undesirable effects later on. However, unavoidably, it is significant as a source of "hard foreign currency" which is an indispensable factor of growth and structural change in LDCs cannot be over emphasis from both sides of the Mediterranean.

Truly, on the reverse side, Ulyses and Nath (2008) find that migrants' remittances contribute to the destabilising of the macro economy. Indeed they show that as international migrant remittances have significant positive effects on inflation and hence its growth moves in tandem with inflation. Remittances increase disposable income in recipient countries and ignite an increase in excess demand which invariably sparks inflation. This tends to worsen balance of payment challenges more seriously in import-dependent economies like Africa.

Again, Nyamongo et al. (2012) and Taylor & Wyatt (1996) add that international migrant remittances received through the official source, allow for massive flow of funds through the banks making it available for funding capital-intensive projects, infrastructural development and investments and thereby opening up the fiscal economy, boosting the employment level for increased economic growth. This eventually comes as immense benefits for sustainable economic development through the enhancement of welfare, employment creation, lowering the cost of living and improving living standards in general as purported by Adam & Page, (2005); Adams, (1993), Gupta et al., (2009), Siddiqui & Kemal, (2006). Giuliano & Ruiz-Arranz (2009) and Jongwanich (2007) indeed reveal that the influence of international migrant remittances is conspicuous in developing countries with extraordinary levels of poor people and where the financial system remain at high levels of underdevelopment. De Haas, (2005) adds that migrant remittances add considerably to development and the improving of living standards even in countries where sender reside and argues that, it must there must be

attractive investment environments and unrestrictive policies immigration which will prevent the interruption of the circulation of migrants' remittance patterns and encouraging high developmental potential to be fully realised even in the recent 'remittance euphoria' unjustifiable.

2.4.2 Meso Level and Remittance Effects

Orozco (2004) admits that improving community development through the financing of social policies has long been engrossed with taxation collection and organisation of social insurance programmes and have also relied on social pension funds with its approaches in the public sector direction, adding that, the awareness of the important role of remittance to community development has only recently dawned on policy makers and has become a part of this discussion. Policy makers have become aware that remittances, as transfers between individuals, contribute to development in a variety of ways, including increasing opportunities for consumption and providing a form of social assistance for families in their country of origin. VanWey, Tucker, and McConnell, (2005) find among the four indigenous Zapotec communities in rural Oaxaca that there is compatibility of traditional governance systems with high international migrant remittance as a result of high migration rates within its communities. They express that groups and societies can take advantage of their communal prowess to organise and appeal to their local governance systems and attract remittances from their native migrants in the diaspora to the advantage of the collective group. Indeed, communities can demand imbursement from migrants' with the purpose developing the communities.

In confirmation, Adenutsi (2010a) adds that at 'the meso level, local assemblies can take advantage of communal developmental projects such as the construction of motorable roads, construction of learning centres and educational facilities as well as supply educational materials, and healthcare centres and hospitals as well as healthcare equipment, initiated and

funded by association of their native migrants' in the diaspora. These groups and associations of native migrants can also organise funds via non-government organisations (NGOs) and other developmental-oriented organisation in support of important social projects such as vaccination against communicable diseases and the provision of potable water in their local communities back home'. This is advantageous and create social benefits indirectly trickles down even to families who directly do not have international migrants within their households.

This notwithstanding, international migrant remittance is said to have an inequality impact among recipient households and non-recipient households. This finding is however a priori uncertain (Stark, Taylor & Yitzhaki, 1986). However, remittances are likely to be largely more inequality increasing or less inequality decreasing in poorer communities than in richer communities. Lipton (1980), however argues that in rural communities, migrants' remittances are either very small or go disproportionate to those already 'better off' as a results of their migrant relations abroad who send remittance. Thus rural –international migration are most likely to lead to a worsening of village income distribution and implicitly to a loss in rural welfare. Stark (1978) and Stark & Yitzhaki (1982), on the other hand, present a case where in the reverse, they emphases equality enhancing consideration associated with migration risk diversion, alleviation of credit constraints and various sharing and filtering down mechanisms pertaining to the remitting. Emphasising that as remittance increases, income inequality does not necessarily imply social welfare is lost and may be consistent with a situation that is preferred under both general social welfare under Paretto criteria. Adams (1991) reiterates that, in spite of the direct poverty alleviation impact of international remittance, they contribute to disparity in the income distribution. Chimhowu , (2004) give an indication in credence to the opinion that remittances indeed escalate disparity at a macro level however globally they aid in the reallocation of capital from the

industrialized to the unindustrialized economies and contribute to the reduction of inequality in resources among countries. Adenutsi, (2010) adds that there is indeed evidence that income inequality exists in rural Sub Sahara Africa as a result of international migrant remittances.

2.4.3 Micro Level and Remittance Effect

At the micro levels, international migrants' remittances are key sources of fund in expanding income for sustenance. Adam & Page (2005) argue that remittances have immense beneficial effects through their direct alleviation of shortage in resources of the recipient household since the potential and likelihood of migrating for greener pastures characteristic of the poor households, they are comparatively 'better-off' with remittances (Adams, 1993; Stark & Taylor, 1989). Indeed, Adam & Page (2005) conclude that both cross border movement and remittances truly lessen the level, complexity, and harshness of poverty in the developing economies. Gupta et al. (2009) also document that international migrant remittance has direct poverty-mitigating effects among households in Sub-Saharan African. Unlike aid, international remittance flow without fail straight to individual households and institutions. In contrast to loans, they do not attract any direct interest liabilities and financial repayment onuses. It serves as start-up money and funds enhancing the support of small and medium-scale enterprises (SMEs) for recipient households making them economically active and enhancing their purchasing power which is likely to economically empower them and increase the general socio-economic development, as purported by Gupta et al. (2009), Siddiqui & Kemal (2006), Insights (2006). Remittances boost consumption by increasing consumption expenditure, in the short run on food, shelter, clothing, healthcare, funerals and festival bills and so on (Quartey & Blankson, 2004).

Besides, in the long run, remittance can also contribute in the developmental process through its investment into education, skills acquisition and training which invariable lead to the productivity of labour and economic development. In confirmation, Edwards and Ureta

(2003) observe that remittances openly lessen the degree of school loafers in El Salvador. Hanson & Woodruff (2003) show that remittances have a direct connection with human capital formation and indicates that it indeed lead to human capital development' (Calero, Bedi, & Sparrow, 2008; Adams & Cuecuecha, 2010) in Latin America. Acosta et al, (2008b) also show that remittances enhance educational attainment in Latin American countries, which is confirmed by Nyamongo et al. (2012) who documents that remittances have beneficial impact on education and invariably on the growth of the economic in 36 African remittance recipient countries.

On the contrary, international migrant remittance has some weakening effects at the micro level. Ideally remittances are meant to be a reward, an opportunity cost for the loss of an economically active labour force to migration. Meanwhile it proves to a debacle in certain circumstances. In fact in some instances, remittances received do not compensate for the loss of economically active labour force to migration. It rather becomes a social cost to households, communities and nations as a whole. The reason being that, remittances flow in to recipients as a non-wage income, and as a result they are mostly substituted for wage income. In view of the regular inflow of remittance, the tendency to sacrifice labour for leisure is very high. This indeed has a lowering effect on domestic labour involvement in domestic jobs (Airola, 2008; Amuedo-Dorantes & Pozo, 2004; Bussolo & Medvedev, 2007; Rodriguez & Tiongson, 2001) having grievious effect of reducing employment and low output per labour particularly in labour intensive countries. Clearly in the labour–leisure framework, it is observed that through an upsurge in remittance receipts families decide to enjoy leisure than labour. Mamun, Sohag, Uddin & Shahbaz (2015) add that this becomes

more severe as most remittance receiving economies are low and middle income economies, thus the use of remittances may push the lessening of further income desires of the migrant's family members (Nath & Mamun, 2010).

2.4.4 Countercyclical Nature of Remittances

It has been documented that international migrant remittances are countercyclical as well as procyclical. It is invaluable for consumption smoothening. Quartey & Blankson (2004) find that remittances are indeed counter-cyclical in nature and are precisely effectual in consumption smoothening of family and the incessant well-being, especially for the most vulnerable group of people'. Frankel (2011) also sheds light on the important theory of smoothing, explaining that, remittances are countercyclical with regards to resources in the migrant's home country, in favour of the recipient of the remittance, while pro-cyclical with regards to resources in the migrant's host country, in view of the sender of the remittance. This affirmation of smoothing suggests it is expedient to put remittances on the list of the criteria for an optimum currency area, and also it brings into doubt plans by governments in some developing countries to harness remittances for personal use, in that government spending in these countries generally fails the test of counter cyclicality which remittances pass.

2.5 Chapter summary

Africa is still faced with a huge developmental finance gap. The usual Official Development Assistance rolled out by donor countries to the least developed countries, mostly in Africa, have been scaled back in real terms. Although measuring exactly the developmental finance needs to propel Africa's sustainable development agenda is complex, it is clear that its domestic resource mobilization alone will not be able to solve all of Africa's resources needs. The complexity of the developmental challenges in Africa worsens its developmental financial needs and deepens the harshness of its capacity constraints. Unavoidably, African

countries need to pull additional unconventional sources of finance as a supplement to its fiscal resources and domestic savings. The motivation to remit are mainly altruistic, the purpose of self-interest and gains and also for providing security in the form of insurance back home, as future occurrences remain unknown. International migrants' remittances into Africa continue to increase astronomically the countries being the second largest recipient. Although they are known to be fungible, their benefit out-weighs its negatives. The developmental effect of remittances goes unnoticed in the entire economy - micro, meso and macro and this cannot be over emphasis.

CHAPTER THREE

DO REMITTANCES MATTER IN LABOUR PRODUCTIVITY AND CAPITAL ACCUMULATION?

3.0 Introduction

In this Chapter, the study examines the consequence of migrants' remittances on labour productivity and capital accumulation in selected African countries. In this study, we includes an annual panel data on twenty-five African countries from 1990 – 2013 and employs the two-step Generalised Methods of Moments (GMM) for the estimation of dynamic panel models, as presented by Arellano and Bond (1991). In order to provide more insight, the study further examined the impact on labour productivity in the presence of natural resource endowment. And again the study examines remittance impact on labour productivity in countries with high life expectancy. The chapter proceeds by first discussing the background to the study in section 3.1. In section 3.2 the chapter further discusses some selected stylized facts. Section 3.3 of this chapter shows a conceptual framework of the channels through which remittances lead to labour productivity and capital accumulation. This is followed by section 3.4 which looks at the review of empirical literature on various themes in which remittances studies have focused concentration. Section 3.5 mainly discusses methodology adopted in the study. It shows the model specification and variable description as well as method of estimation. A presentation of results and findings can be found in section 3.6, whilst section 3.7 concludes with a chapter summary and policy implications.

3.1 Background to the Study

The key to the sustenance of growth of an economy hinges on the idea gaps of human capital and the object gaps of physical capital within that economy. These two are related to the effect that countries that lack one type of capital tend to be denied of the other (Romer 1993). The lack of access to finance is an impediment that keeps underprivileged economies from getting a toehold on the development ladder (Solow 1956; Harrod 1959; Sachs 2005). It appears Africa is underdeveloped but not as poor and as it seems to be.

Africa is the second largest recipient of remittance after Asia (Ratha, De, Dervisevic, Eigen-Zucchi, Plaza, Wyss, Yi & Yousefi, 2014). Coupled with its hefty share of the world's natural resources, this puts Africa on the dais of other capital rich continents. Remittances into Africa alone make available substantial inflows of physical capital. It outpaces official development assistance and other private capital inflows (Ratha et al. 2014). These monies are augmented by Africa's mineral wealth. Natural resources in Africa accounted for 77 per cent out of overall exports and 42 per cent of government revenue in 2012 (AfDB 2015). It is estimated that the continent's natural resources will contribute over US$ 30 billion per annum in government revenues over the next 20 years (AfDB 2013). Remittance, on the other hand, sent by 31 million international African migrants, through formal channels, was more than four times of GDP since 1990, and getting to US$40 billion in 2010 equalling to 2.6 per cent of Africa's gross domestic product (GDP) (Ratha et al. 2012). It is likely to escalate by 3.4 per cent in 2016 (World Bank 2016). It is worth noting that this data gathered from formal channels and are most likely to be understated due to the several informal channels via which these remittances are received.

It suffices to note that these two (remittances and mineral wealth) can be perceived as akin. If remittances are distributed among a large number of people, then, distributing resource revenue makes the two jointly unleashed a massive domestic capital, increasing per capita

income and disposable income. Empirically, it is proven that less revenue is raised in taxes domestically in countries that receive large natural resource capital (Moore 1998, 2007; Collier & Hoeffler 2005; Collier 2006; Bornhorst, Gupta & Thornton 2008). It suffices to argue that this is likely to increase disposable income. Remittance inflows will further augment income levels. Furthermore, the neo-classical framework explains that all growth effects are generated through capital flows. And that the flow of capital from capital-abundant countries towards capital-scarce countries accelerates convergence in poor countries (Bonfiglioli, 2008). Even in a more sophisticated context, labour productivity is most likely to increase since capital inflows may dismiss credit constraints within the economy and as a result allow recipients to assume more industrious investments and accumulation of capital (Acemoglu & Zilibotti, 1997). Alternatively (Saint-Paul, 1992; Obstfeld, 1994) recommend that flexibility of movement of international capital affects productivity autonomously aside investment as it enhances international risk diversification which encourages innovation activities and fosters growth. Ascertaining how international migrants' remittances significantly impacts labour productivity and capital accumulation in selected African remittance-recipient countries is are imperative.

This notwithstanding, the Multidimensional Poverty Index (2015) shows that Africa is 75.3 percent rural, indicating the propensity to internationally migrate in search of greener pastures (Alkire et al. 2015). Africa's growing population plagued with deprivation, poor mainly rural households, validates the likelihood of a high inclination to cross-border movement in the hunt for 'milk and honey' which inevitably leads to a massive influx of the transfer of funds. It is expected that Africa will continue to confront its poverty with its hard cash receipts (remittances) in addition to wealth from its large natural resources and will amass significant natural capital, leapfrogging its capital base and providing opportunities to improve human capital. Africa cannot afford to be poor.

For Africa's transformation, it must harness what it has to get what it needs. Employing its huge remittance inflow and resource wealth now to empowering its human capital into productive labour will ultimately sustain it far beyond the time when the continent's natural resource and their high prices run out. Turning finite wealth into infinite wealth, natural wealth into created wealth, and resource-based economies into diverse knowledge and industry-based economies which create jobs are imperative. Osabuohien and Efobi (2013) find that the African who live outside of their home countries donate hugely to their homeland development, however, the broader macroeconomic strategy choices on how remittances inflow influence the productivity of labour and capital accumulation has not been adequately studied. Maximising natural and human capital is intrinsically linked, and the two constitute the twin and overarching objectives of this study.

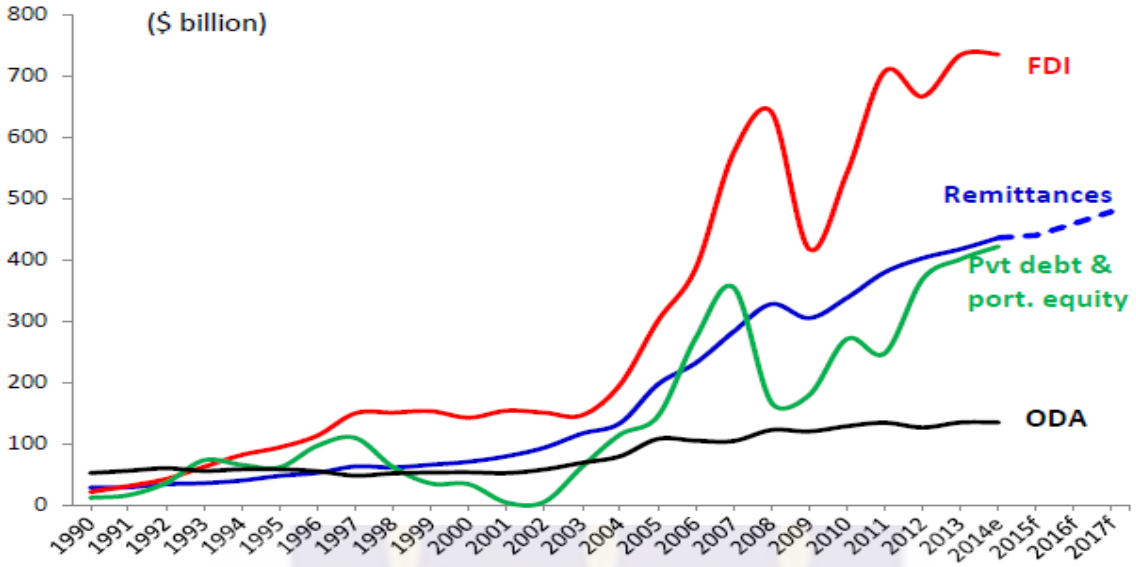
The quest in this chapter is twofold, using a panel of 25 African countries across 23 years, the study first, established the full potential of remittance impact on labour productivity with respect to the continent's natural resource capital; furthermore, it showed the extent to which remittance impacts on labour productivity in environments where life expectancy is high. Secondly, we investigated the difference human capital makes in remittance impacts on capital accumulation in Africa.

3.2 Stylized Facts

Observably from figure 3.1, international migrants' remittances after FDI are the second major external source of financial inflows for developing economies. Clearly, remittances are indeed steadier than any capital that flows privately. These over and over again move pro-cyclically, thus levitating financial resources during periods of abundance and scarcity throughout economic downturns. On the contrary, remittances are hardly volatile, their inflows rather surge in reaction to pecuniary progressions in the receiving home countries. Although remittances are lesser in foreign inflows as compared to FDI, they are far more than

foreign capital market flows. Remittance receipts have exceeded official development assistance although the latter presents more predictability. Remittances have indeed gained recognition as a conspicuous source of foreign financial flow for many developing nations. Remittances which are most often used for purpose of consuming goods and services in receiving homes are expected to be less unpredictable as compared to those targeted at investments (Ratha, 2003). Migrants' remittances indeed upsurge during times of economic hardship and more particularly, in low income, vulnerable countries where households live absolutely in subsistence levels and rely considerably on remittances much more as an additional source of funds. Economic uncertainty in native countries, mostly inspires households to travel abroad in search for greener pastures and thereby transfer financial wealth to the rest of the households back home. Remittances directed in investments are unlikely to suffer the sharp withdrawal or euphoric surges that typify most portfolio flows to emerging markets.

Figure 3.1: Remittance flows show consistent and steady growth



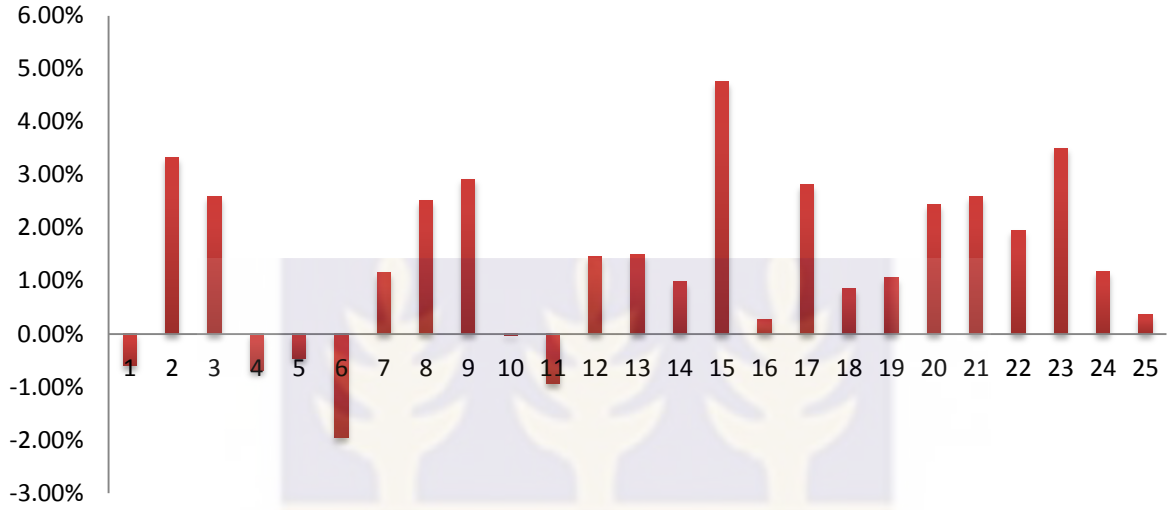
Source: Ratha et al. 2015. Migration and Development Reports 2015.

From Figure 3.2, it is clear that there are large variations in labour productivity growth between economies in the region, ranging from more than 4% in large economies such as Angola, Mozambique, Uganda, Ethiopia, to contractions in economies such as the Democratic Republic of Congo (DR Congo), Côte d'Ivoire and Madagascar. Twenty countries show a positive growth in their productivity of labour over the time, with the highest peak in Mozambique (5%). Five countries, (Algeria, Cameroon, Côte d'Ivoire, DR Congo and Madagascar) present negative growth in labour productivity, with the lowest in DR Congo (-2%). North African countries in the sample show positive growth, except Algeria with a negative growth (-0.05%). Likewise, south eastern African countries show positive labour productivity growth, with the highest in Mozambique, except Madagascar with (-1%). Within the West African block, Angola has the highest growth (3.4%) and Cote d'Ivoire, the least (-0.02%) in West Africa.

Labour productivity continues to be the only most imperative factor that determines countries' income per capita in the long run. It is certainly the bases for comparative advantage among country's (Caves et al 1982). It is therefore not to compromise especially,

in African countries that are targeting national agenda that strive for the enhancement of training and the acquisition of abilities and skills necessary for effective labour. This insures the growth of labour productivity favourably.

Figure 3.2: The average growth of labour productivity of the sampled African countries.

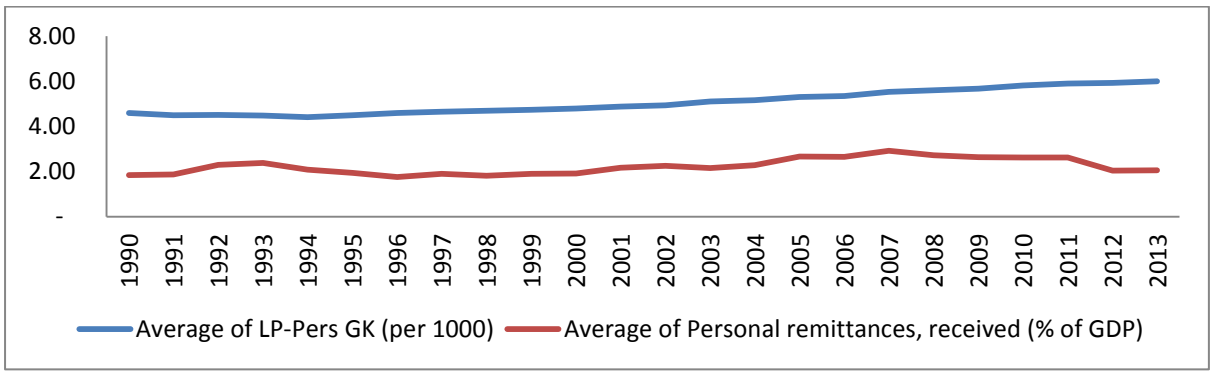


Source: Compiled by author on the basis of The Conference Board Database (labour productivity).

(1. Algeria 2Angola 3 Burkina Faso 4. Cameroon 5.Côte d'Ivoire 6 DR Congo7 Egypt 8. Ethiopia 9. Ghana 10 Kenya 11 Madagascar 12 Malawi 13. Mali 14 Morocco15 Mozambique,16 Niger, 17 Nigeria, 18 Senegal, 19 South Africa. 20 Sudan, 21 Tanzania, 22 Tunisia 23 Uganda 24 Zambia 25 Zimbabwe)

The absolute anxieties that accompany the flow of remittance as an alternative source of flow of 'hard foreign currency' may thus end in Dutch disease in receiving countries is really not the case (Mamun, Kazi, Nahla, & Farida 2016). Remittance flow moves in tandem with labour productivity. From figure 3.3, there is a positive relationship between remittances and labour productivity with both increasing steadily over time.

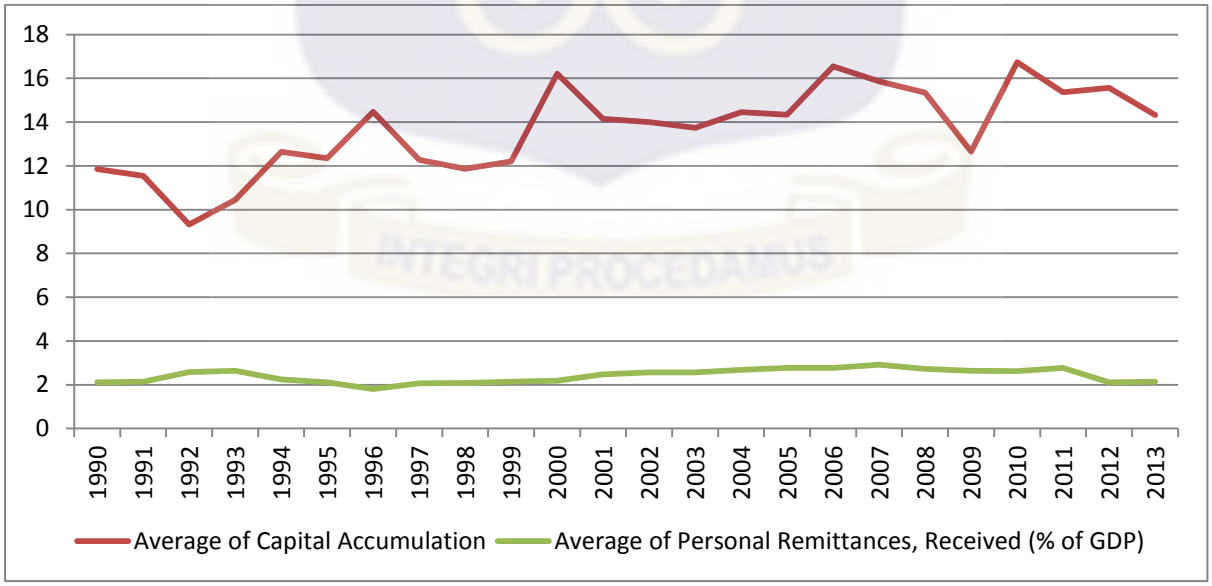
Figure. 3.3: shows variability in average labour productivity and average personal remittances.



Source: Compiled by author's on the basis of The Conference Board Database (labour productivity) and World Development Indicators (Personal remittances)

Capital accumulation is as a result of the pursuit of profit. From Figure 3.4 we find that both remittances and capital accumulation, proxy as domestic savings to GDP, are both experiencing increasing growth, however, capital accumulation is increasing with several intermittent fluctuations. Remittances, on the other, maintain a steady growth. It is observed that there is a linear and a positive relationship between remittance and capital accumulation.

Figure. 3.4 Shows the Relationship between Remittances and Capital Accumulation



Source: Compiled by author's from Data on World Development Indicators (Personal remittances to GDP and Domestic savings to GDP)

Capital accumulation aims at increasing initial monetary value of asset as a financial return either in the form of profit or capital gains, (Richards, 2013) meanwhile, considering the motives for the inflows of international migrants' remittances, whether it is based on altruism, self-interest or for insurance purposes will invariably lead to capital accumulation. (Sabra,2016).

In 1992 and 1996, Africa experienced a general decrease in domestics saving-capital accumulation while remittances inflows continue steadily. Presumably, the scepticism may be due to the general election in the United States of America 1992 which led to a change of government, and the handing over of power to President Clinton, as well as, the debilitating effect from the disaster from 'Hurricane Bertha' in North Carolina. The USA happens to be the world's biggest donor in aid, especially to Africa; hence it is most likely those African countries who are major recipients of US Aid to experience any negative consequences of occurrences in the US. Again, it could be noted that, some African countries experienced political upheavals, for instance, the civil war in Somalia, as well as the referendum held in South Africa that, ended Apartheid, and again the agreements arrived at, under the President Rawlings government, to move Ghana to a democratic rule from military rule in the year 1992.

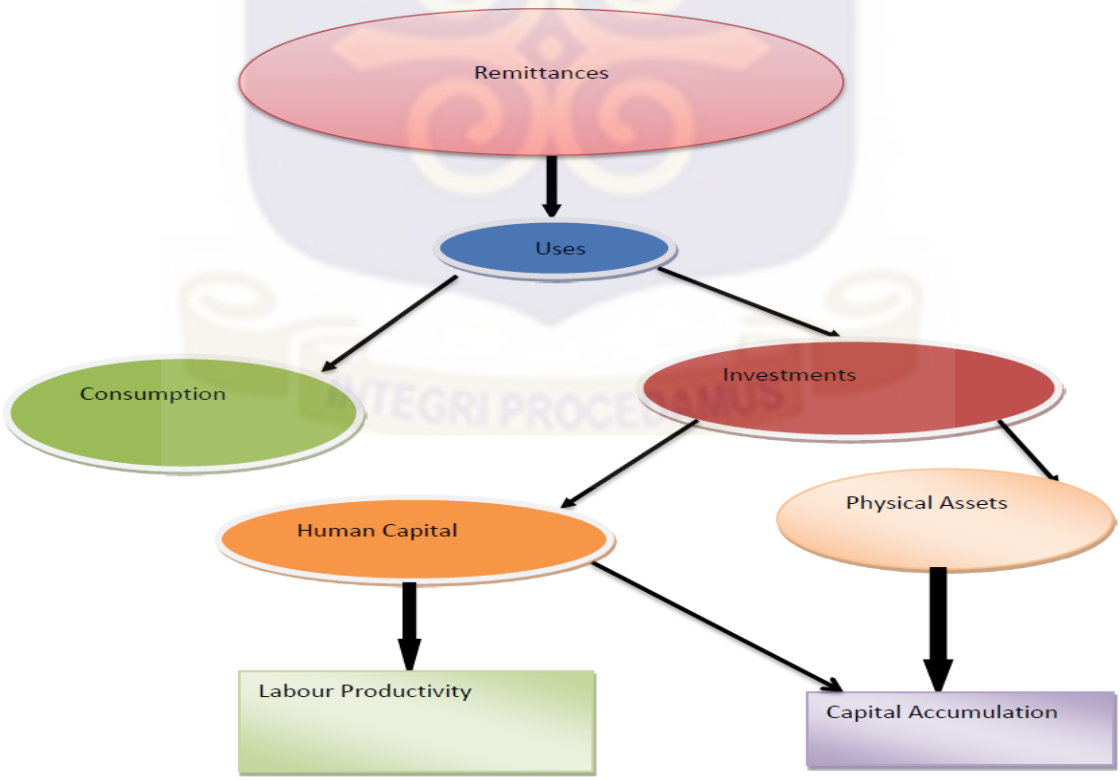
3.3 Conceptual Framework of Remittance Impact on Labour Productivity and Capital Accumulation

In Figure 3.5, the underpinnings of this framework stem from (Baldé, 2011 and Mamun et al. 2015) who explain that international migrants' remittance inflows increase savings, investment capital and human capital development. There is an overall effect on multiplier consumption; cumulative demand and the growth in GDP which stem from the application of migrants' remittances. This conceptual framework is based on the theories of remittance.

Remittance inflows are with an altruistic motive, self-interest or for insurance motives. If the inflows are based on the altruistic motive, it is presumed that remittances received will be consumed. On the other hand, if remittance flows in with the motives of self- interest or insurance purpose, it is believed that it may cause investments. These remittances could be invested in human capital or physical capital.

Diagrammatically the study puts forth the flow of international migrants' remittances either directly as consumption expenditure (Sofranko & Idris 2009; Chami et al. 2003) or directly as capital for investment (Woodruff & Zenteno 2007). Remittance inflows into investment can be made in human capital through financing payment for training, skills acquisition and other forms of educational attainments of recipients.

Figure.3.5: Conceptual framework of Remittance, Labour Productivity and Capital Accumulation.



Source: Author's compilation

Such investment made in human capital invariably has a spillover effect in the productive potential of labour (Rapoport & Docquier 2006; Caballé & Santos 1993). On the other hand, remittances inflow can also be invested in productive assets. Investments made in productive assets mostly have rippling effects on the growth in capital which invariably leads to an accumulation of capital, (Chiodi et al. 2012; Amuedo-Dorantes & Pozo 2014).

3.4 Review of Literature

In the last two decades, the colossal remittance literature has focussed attention on issues other than the potential impact of remittance on labour productivity and domestic saving-enhancing capital accumulation.

Some empirical studies on remittances includes: remittance and economic growth (Dzeha 2016; Nyamongo et al. 2012; Barajas et al. 2009; Rajan & Subramanian 2005; Taylor & Wyatt 1996; Nishat & Bilgrami 1991). Dzeha (2016) however finds that there is no consensus in both theoretical and empirical literature on the impact of remittance on economic growth. Various reasons such as the method of analysis, target countries under a study and period of study could be given for such variation in the findings in such studies. Other studies looked at remittance and development. In the literature some studies measure economic development as economic growth, Adenutsi 2010; Gupta et al. 2009; Siddique & Kernal 2006; Adams & Page 2005; Chami et al. 2003, 2005; Ratha 2003; Adams 1993.

Gupta et al. (2009) show how remittances afford recipients the ability to increase consumption of basic necessities such as food, good healthcare, shelter, and clothing, alleviating poverty and enhancing the productive capacity of the recipients. Adenutsi (2010) finds that there are increased positive externalities resulting from high remittance inflows. These externalities include greater access to vital communal infrastructure, drinkable water, facilities for good healthcare in import-dependent unindustrialized economies such as in Sub-

Saharan Africa (SSA) (possibly excluding such countries as the Republic of South Africa, Cote d'Ivoire and the Seychelles and countries like Nigeria and Namibia that export oil).

The influence of remittances in the formation of human capital and on education as well as schooling has been studied widely. Some of these include Adams & Cuecueha (2010), Calero et al. (2009), Edwards & Ureta (2003), Bredl, (2011), Hanson & Woodruff (2003). Edwards & Ureta (2003) find that remittances in El Salvador indeed have the beneficial effect in settling the cost for younger members of the households to remain in school by funding human capital. Caballé & Santos (1993) and Graça, César De Souza, & Pires (1995) show that increases in the physical capital raise the return of education producing a positive spill-over effect on the level of human capital.

Remittance also impacts consumption positively according to Sofranko & Idris (2009), Rapoport & Docquier (2006), Quartey & Blankson (2004). Rapoport & Docquier (2006) admit that remittances indeed enhance consumption smoothing and lead to a decline in poverty in many developing countries. Sofranko & Idris (2009) conclude that workers' remittance is mainly for consumption. Ssozi & Asongu (2015) with data from 31 SSA countries across 1980-2010 show that current remittance receipts boost consumption but have a negatively insignificant impact on investment. They, however, show that it is previous remittance received that boosts investment through increased consumption and not current receipts.

In the literature on remittances and financial development, Nyamongo et al. (2011), Aggarwal & Horowitz (2010), Shahbaz et al. (2007), Giuliano & Ruiz-Arranz (2005) and Gupta et al. (2009) explain how remittances impact financial development positively as well as negatively. This is in congruence with the findings of Dzeha, (2016), in that there is truly no agreement as to how remittance affects financial development.

Substantiating remittance as a source of insurance and welfare, Gupta et al. (2009), Amuedo-Dorante & Pozo (2006) argue that remittances lead to a Dutch Disease. Adenutsi (2010) Acosta et al. (2007, 2009), Vargas Silva (2009), Bourdet & Falck (2006) express that moral hazard which is mostly associated with deliberate joblessness is typically as a result of escalating inflows of remittance, increase in income inequality, the appreciation of exchange rate and Dutch Disease mainly in minor economies that are open and import-dependent. In remittance and labour participation studies, Chami et al. (2005) show that in Pakistan families where remittances are received, they do record a dropping in the active participation in agriculture, while Bayangos & Jansen (2011) find remittances that have a highly beneficial effect on the labour market in the Philippines' domestically. Rodriguez & Tiongson (2001) confirmed indicating that indeed in the Philippines, remittances shrink employment among both men and women.

Amuedo-Dorantes & Pozo (2006) find evidence that remittances have the tendency of encouraging men in Mexico to alter their apportioning of labour supply across all work types and thus to a fall in the labour supplied by women in Mexico. In agreement, Acosta (2006) finds that remittances have a debilitating effect on the female labour supply in El Salvador, and show that male labour force involvement however, seems to be insensitive. Adenutsi (2010) finds that the disincentive to work is associated with the inflow of remittance.

While there exist no data on how much of remittances are consumed or invested, studies show that the remittances are mostly consumed (Gupta et al. 2009; Adams and Page 2005). Others find that remittances are invested as business start-up capital (Mesnard 2004; Woodruff & Zenteno 2007; Dustmann & Kirchkamp 2002) or directly into domestic savings (Osili 2007; Amuedo-Dorantes & Pozo 2006). Remittance receipts are also invested in education, acquisition of skills through training and personal development (Vlase 2013; Bredl 2011; Calero et al. 2009; Amuedo-Dorantes et al. 2008; Acosta et al. 2007; Acosta 2006).

Woodruff & Zenteno (2007) show that remittance inflows employed in financing domestic investments, lead to capital accumulation.

León-Ledesma and Piracha (2001) found that remittances have beneficial effect and relates positively to both productivity and employment in eleven Central and East European countries over the period of 1990-1999, both directly and indirectly through their effect on investment. Mamun et al. (2015) employing data from 1980–2012 on 61countries show that remittances impact positively on labour productivity, but it is insignificant. They also show that beyond a certain threshold, remittances have negative impacts on domestic labour productivity.

Clearly, there is dearth in literature as to how remittance impacts on labour productivity and domestic savings in Africa that has much resource wealth, making this study imperative. Remittances, unlike loans, have no direct interest payments or financial obligations attached; hence have the potential to augment financial wealth. If natural resource wealth improves domestic capital, then both may accrue to disposable income, all things being equal. These afford recipients excess income over expenditure which can be channelled into various forms of investments. These investments include the purchase of real physical assets which generate wealth and increase savings and capital accumulation. Another option is the decision to invest in education, into the acquisition of skills through training, enhancing labour productive quality.

This study contributes to the literature by filling in the gap by exploring remittance impact on labour productivity with respect to resource wealth and longevity of life. It further explores the difference remittance will make in capital accumulation through- domestic savings with respect to human capital in Africa.

3.5 Methodology

This study contributes to knowledge, first by establishing the full potential of the remittance impact on labour productivity with respect to the continent's natural resource wealth. Furthermore, the study shows the extent to which remittance has an impact on labour productivity in environments where life expectancy is high. Secondly, it investigates the difference human capital makes in remittance impact on capital accumulation in Africa.

3.5.1 Model Specification and Description of Data

This study examines the effect of remittance on labour productivity as well as capital accumulation. Labour productivity *(Lp)* is defined as the labour productivity as a result of labour employed according to the 1990 US$ which is converted at the Geary Khamis (international dollar) Purchasing Power Parity (PPP). The international dollar is a currency unit employed in economics and by international organizations for the purpose of comparing the worth of different currencies, adjusted to absorb variations in currency exchange rates as well as reflecting PPP and average prices of commodity within each country. We employ the model in Mamun, et al. (2015) that looks at labour productivity among men who are economically active in a global study. We however depart from their studies by looking at the total labour productivity per person (both male and female), sourced from 'The Conference Board' database 2015. Labour productivity, Lp_{it} is the dependent variable in this study. We include a vector of explanatory variables X'_{it} all are a function of labour productivity.

$$Lp=(Rem,Gdp/cap,Investment,FinOpen,Manv,Empgrowth,\ Popgrowth,\ natural\ resource,\ life\ expectancy) \quad (1)$$

$$Lp_{it} = \alpha_0 + \beta X'_{it} + \mu_i + \vartheta_{it} + \varepsilon_{it} \quad (2),$$

where i stands for cross-sectional dimension, i=1,2,3,……..J and t represents the time period, t=1,2,3…….T and Xit=(X_{it1},X_{it2},X_{it3}…….X_{itk}) is a matrix of explanatory variables, β=(β_1,β_2 ,β_3……β_k) is a vector of K regression parameters while βj=(J=1,2,3……..K)

represents the average change in Lp_{it} per a unit increase in Jth explanatory variables X_{itj} =(J=(1,2,3,……K) while α_0 stands for an intercept parameter μ_t and ε_{it} are the country specific fixed effect errors and time specific errors respectively.

The specific equation is,

$$lnLp_{it} = \beta_1 Lp_{it-1} + \beta_2 Rem_{it} + \beta_3 NatRes_{it} + \beta_4 Rem * NatRes_{it} + \beta_5 LifeExp_{it} + \beta_6 Rem * LifeExp_{it} + \beta_7 Gdpgrowth_{it} + \beta_8 Inves_{it} + \beta_9 finope_{it} + \beta_{10} Manv_{it} + \beta_{11} empgrwth_{it} + \beta_{12} popgrwth_{it} + \mu_i + \mu t + \varepsilon_{it} \quad (3)$$

Table 3.1: Description of Variables used in the Regression (3)

Variables	Description	Source	Expected sign
Lp as Labour productivity	Labour productivity per person employed according to the 1990 US$ which is converted at the Geary Khamis Purchasing Power Parity.	Conference Board database, Canada	
Rem	Total Remittance to GDP ratio	WDI,2015	+
NatRes	Total natural resource rent to GDP ratio	WDI, 2015	+/-
LifeExp	Life Expectancy	WDI,2015	-
GDPgrowth	Gross domestic capital per capita growth	WDI, 2015	+
Inves as Investment	Gross fixed capital formation	WDI, 2015	+
Finopen as Financial openness	Proxied as foreign direct investment inflow to Gdp	WDI, 2015	+/ -
Manv as manufacturing	Manufacturing value to Gdp	WDI, 2015	+/-
Empgrowth	Employment growth	Conference Board database, Canada	+
Popgrowth	Population growth annual (%)	WDI, 2015	-

Source: Author compilation from conference Board Database and World Development Indicators

Being aware of the limitation in the measurement of international migrant remittance, *(Rem)* under the circumstance we adopt the definition from the World Bank's World Development Indicators. Remittances are defined as the total remittances received as a ratio of GDP.

Mamun, (2015) asserts that although remittances have beneficial effect, beyond a certain threshold they do have a negative effect on domestic labour productivity for countries who receive greater inflows of remittance as well as having abundant labour force. It is therefore expected that remittance will positively impact labour productivity.

Natural Resource *(NatRes)* is measured as total natural resource rent scaled by gross domestic product, OECD glossary of statistical terms explains that the economic rent of a natural resource is equal to the surplus value of the capital services flows as rendered by the natural resources or their share in the gross operating surplus; their value is mainly given by the value involved in their extraction. Resource rent is divided between the resources depletion and their return to natural capital. It includes the difference between the prices at which resource output could be sold and their respective costs involving the extraction and production as well as profit.

Intuitively it is anticipated that revenue from natural resource may lead to a reduction in labour productivity or will serve as an impetus for the acquisition of skills and training which may improve labour productivity. Furthermore, we interact remittance and natural resource *(Rem*NatRes)*. The intuition is that remittances flow in to further increase disposable incomes in resource rich countries. It is anticipated that the surge in disposable income may further increase labour productivity if such incomes are invested in human capital development. However, such increases in disposable income could be detrimental to labour productivity resulting from an increase in the consumption of leisure rather that works.

The literature documents that countries receiving revenue from domestic taxes mostly lessens as huge revenues are gathered from natural resource endowments (Moore 1998, 2007; Collier & Hoeffler 2005; Collier 2006; Bornhorst et al. 2008). It suffices to further argue that the reduction in tax collection is likely to increase disposable income. Remittance inflows will

further augment income levels and therefore we expect that it will promote labour productivity. It is therefore expected that the interaction between the remittances and natural resource capital may have either a positive or a negative effect on labour productivity. Ascertaining the effect of this on labour productivity is imperative.

We further conjectured that countries with high life expectancy, labour productivity will tend to be lowered. Therefore we expect that high life expectancy will have a negative effect on labour productivity. We however conjecture that remittance inflows move in tandem with high life expectancy since higher inflows of remittance are received by older people for their upkeep. Countries with higher life expectancy are likely to attract the inflows of remittance which may either directly leads to a reduction in labour production or indirectly lead to an increase in labour productivity. Thus, we interact remittance and high life expectancy to ascertain its effect on labour productivity.

It is hoped that older people towards the end of their working years become less productive and thus are more likely to attract the inflows of remittance although these will only be useful for consumption smoothing. This may or may not directly promote labour productivity hence interacting remittance and life expectancy *(Rem*lifeExp)* will enable us ascertain its impact on labour productivity. We further argue that longevity undergirds labour productivity in the sense that as older people receives remittance they may apply it in the consumption of healthy foods and also to purchase medication which is likely to prolong their lives. The older people may indirectly propel labour productivity through the transmission of knowledge, skills and expertise to the younger generation thus enhancing labour productivity. Thus if older recipients of remittance are skilled and trained, they may live longer to share their skills and expertise with the younger generation enhancing labour productivity. Thus, it is expected that the interaction term may either be positive or negative. We created a dummy for

countries with life expectance ratio greater than 55 years as '1', for high life expectancy, and those with less than 55 years as '0', for low life expectancy.

We employ other control variables which include; gross domestic product per capita, *(gdp/cap)*. Labour productivity is an indicator which throws light on several economic indicators including GDP per Capita. It indeed suggests the competitiveness of country's economic growth as well as the standard living within an economy. It is the measure the major economic basics necessary for labour productivity which also helps to explain the growth in economic and social developments. It is expected that GDP/Capita will have a positive relationship with labour productivity (Abramovitz, 1956).

Again we also added investment *(Inv)* which is proxy as gross fixed capital formation. Investment directly increases the stock of capital that workers can have access to in order to increase their production levels for given levels of labour input. Hence investment, through the accumulation of capital, is a direct driver of productivity. Again as investments increase the level of capital stock it indirect impact on labour productivity through spillover effect on other factors of production (MFP). For instance, increasing the level of capital through investments in new equipment could assist labour in gaining new skills and increase their efficiency and productivity. It is therefore expected that investments will have a positive effect on labour productivity (Beard, 2008).

Financial openness *(fdi)* proxy as foreign direct investment normalised at GDP is likely to have a positive effect on labour productivity. Fraga, (2016) show that FDI is positive and statistically significant to labour productivity. Manufacturing value to GDP *(Manv)* intuitively is likely to have a positive effect on labour productivity. An increase in manufacturing value should move in tandem with labour productivity. Employment growth *(empgrwth)* is expected to have either positive or negative effect on labour productivity.

Growth in labour productivity is directly attributable to fluctuations in physical capital, new technology and human capital. Intuitively, an increase in employment of skilled labour and specialised workforce will lead to an increase in labour productivity. On the other hand if employment increases leads to a decrease in labour productivity then labour force do not possess the right skills need for increase productivity (OECD, 2008).

Population growth *(popgrwth)* is expected to have a negative relationship with labour productivity. It is anticipated that as population grows, the abundance of labour force will lead to a reduction in productivity of labour. Pritchett (1999) show that the weak correlation between labour productivity and population growth is the result of shifts in participation in the labour force. All the control variables were sourced from the World Bank's World Development Indicators.

The second model explores the impact of remittance on capital accumulation, as per (Hossain, 2013).

$$Ca = (Rem, Finopen, Inves, Gdpcap, Humcap, Trade, Agedep, IR) \quad (4)$$

$$Ca_{it} = \beta X'_{it} + \vartheta_i + \mu_t + \varepsilon_{it} \quad (5)$$

Specific model estimated is;

$$Ca_{it} = \beta_1 Ca_{it-1} + \beta_2 Rem_{it} + \beta_3 Humcap_{it} + \beta_4 Humcap * Rem_{it} + \beta_5 finope_{it} + \beta_6 inves_{it} + \beta_7 Gdp/cap_{it} + \beta_8 Trade_{it} + \beta_9 Agedep_{it} + \beta_{10} Interest_{it} + \vartheta_i + \varepsilon_{it} \quad (6)$$

Table 3.2: Description of Variables used in the Regression (6)

Variables	Description	Source	Expected sign
Ca	Capital Accumulation proxy as Gross domestic savings (% of GDP)	WDI, 2015	
Rem	Total Remittance to GDP ratio	WDI, 2015	+
Humcap	Human Capital proxy as Secondary School enrolment	WDI, 2015	+
Finopen	Financial openness proxy as foreign direct investment inflow to Gdp	WDI, 2015	+/ -
Inves	Investment proxy as gross fixed capital formation	WDI, 2015	+
Gdp per capita	Gross domestic capital per capita	WDI, 2015	+
Trade	Trade to GDP ratio	WDI, 2015	+
Agedep	Age dependency ratio (% of working-age population)	WDI, 2015	+
interest	Real Interest Rate	WDI, 2015	+/-

Source: Author's Compilation from World Development Indicators, 2015

Capital accumulation *(Ca)* is the dependent variable, proxied as the growth of gross domestic savings. The growth of gross domestic savings positively augments capital domestically that can be harnessed and use for fruitful investments. Personal remittance received from abroad to GDP *(Rem)* is the key endogenous variable and it's a function of domestic capital accumulation. Woodruff & Zenteno (2007) find that international migrants' remittances assist in the increase of the level of investment in capital by about 35 per cent to 40 per cent. Specifically, these authors show that, migrants' family members back home in Mexico were able to access their capital needs to grow and expand their micro-enterprises as a result of remittances they received. Contrarily, Chiodi et al (2012) find that migrants' remittances exert negative effect on investment and capital accumulation, confirming that remittances afford recipients pleasure and increases their consumption of leisure. We therefore expect remittances can affect capital accumulation either positively or a negatively.

We also expect human capital *(humcap),* proxy as secondary school enrolment, to positively promote domestic savings- capital accumulation. Schumpeterian growth model holds that

human capital and physical capital accumulation are two complementary factors interacting with each other. Little (2003) however show that accumulation of physical capital is effective with the level of human capital available. It is expected that human capital will have a positive effect on capital accumulation.

Furthermore we anticipate that remittances will augment domestic savings if their recipients are more knowledgeable, skilled and trained. It is much more likely that such recipients will channel remittance inflows into more productive domestic investments. Hence increase the accumulation of capital. We thus interact remittance and human capital *(Humcap*Rem)* and expect that it impact on capital accumulation will be positive.

Financial openness *(fdi)* is proxied as foreign direct investment normalised by GDP. Bonfiglioli, (2008) finds that financial openness does not systematically increase capital accumulation and domestic financial depth. Schive (1988) stresses the importance of foreign direct investment in Taiwan cannot be understated although its contribution to capital accumulation might be small. Financial openness is likely to have a debilitating effect on capital accumulation. Investment, *(inv)* is proxied as gross fixed capital formation and it is expected to positively affect capital accumulation in synchrony with Beddies (2006) who find that private investments impact positively on private capital accumulation and significantly lead to large output growth. And further show that an increases in public investment boost output substantially.

Growth in gross domestic product per capita, *(gdp/cap)* is a direct measure of economic growth and standard of living. An increase in gross domestic per capita is an indication of increasing living standards. It is therefore expected that per capita gross domestic product growth will lead to a positive effect on capital accumulation as purported by (Maddison, 2001). Trade to GDP *(Trade)* is expected to have a positive effect on capital accumulation. In

agreement to (Brecher et al. 2005) by introducing capital accumulation into the Heckscher–Ohlin framework to show that trade raises capital rental and encourages investment.

It is shown in (Thøgersen 2015) that an increase in the elderly dependency ratio will increase the long-run capital stock as such we expect that an increase in age dependency *(Agedep)* triggers an increase in capital accumulation. It is expected that an increase in real interest rate *(Interest)* will a positive impact on capital accumulation. All our control variables sourced from the World Bank's World Development Indicators.

3.5.2 Methods of Estimation

Prominent concerns in the migration and development literature is the issue of endogeneity. Panel data estimations pool cross-section and time-series data together.

The use of the Ordinary Least Square (OLS), Fixed and Random estimators are not deemed fit for the estimation of the parameters in our panel regression model. Basically, the assumptions undergirding these estimators are violated given the data available for the study. It is therefore best to employ the Generalised Method of Moment in such situations. Moreover, the independent variable, remittances, is seen as endogenous to the model, creating biased estimates should the OLS be used. According to Arellano and Bover (1995), if the error term is not orthogonally related to the regressor, then the regressor is endogenous and does not follow and satisfy the orthogonality condition. It is therefore claimed that endogeneity increases if sufficiently the regressor is indeed correlated with the error in the presence of the intercept in the equation.

Again, remittances are presumed to Granger cause labour productivity. Also, remittances may Granger cause capital accumulation. Furthermore, there may be variables that are omitted from the model that may lead to endogeneity. Also, the lagged of the dependent term may be correlated with the error term. With these in view, it is useful to employ the Generalised

Methods of Moments which mitigates the setbacks associated with the problem of endogeneity.

The Generalized-Method-of-Moments (GMM) estimators developed for dynamic panel data introduced by Arellano and Bond (1988) is utilised in our estimation. Arellano and Bond (1988) proposed a one-step and two-step GMM framework to estimate coefficients of panel regression and argued that additional instruments can be obtained in a dynamic model if the orthogonality conditions that exist between lagged values of dependent variables and the disturbance term are utilised. The first-difference of the model eliminates the individual effects, and then estimates are computed using two or higher period lagged dependent variables as instruments, following Sargan-Hansen's optimal GMM framework (Baltagi & Kao 2000).

Although GMM has proven to be more efficient with short time series and employs the use of internal instruments as opposed to other Instrumental Variable (IV) estimators which use external instruments, one of its limitations is the asymptotic weakness of its precision and that of the instruments which involve considerable bias in finite samples.

The GMM allows the elimination of a country-specific effect by taking the first-differences of equations (3) and (6).

$$y_{it} - y_{it-1} = \alpha(y_{it-1} - y_{it-2}) + \beta(x_{it} - x_{it-1}) + (\varepsilon_{it} - \varepsilon_{it-1}) \qquad (7)$$

Thus, this eliminates potential biases with unobserved fixed country effects. The use of the instruments required deals with (1) the endogeneity of the explanatory variables, and, (2) the problem created by constructing the new error term $\varepsilon_{it}-\varepsilon_{it-1}$ which correlates with the lagged dependent variable, y_{it} - y_{it-1} if it is eliminated. Under the assumptions that the error term is not serially correlated and the explanatory variables are weakly exogenous (i.e., the

explanatory variables are uncorrelated with future realizations of the error term), the GMM dynamic panel estimator uses the following moment conditions:

$[y_{it-} .(\varepsilon_{it}-\varepsilon_{it-1})] = 0$ for $s \geq 2$; t=3……..,T

$E[x_{it-s}. (\varepsilon_{it}-\varepsilon_{it-1})]=0$ for $s \geq 2$; t=3……..T

3.6 Discussion of Results and Findings

3.6.1 Descriptive Statistics on Remittance and Labour Productivity

We initially used descriptive statistics to have a clear and generalized view of the data. In Table 3.3, the description of the entire panel is exhibited. It shows that the average level of labour productivity per year (real GDP per person employed converted to Geary Khamis Purchasing power parity) is US$ 5,062.62. The level of remittance receipts per Gross domestic product per year is 2.2% averagely. Maximum remittance received per year under the coverage period is 14% per GDP with variability of 2.5%. Interestingly, the 2.2% in Africa is lower than the 4.8% of average remittances received low-income countries, however, higher than that received in Sub-Saharan Africa and Asia-Pacific of 1.5% and 0.61% respectively. The average growth of GDP per capita per year is approximately 1.6%. This is higher than the -0.47% growth in GDP low income countries. Again, 1.6% is lower than the 4.66% Asia-Pacific but higher than the 0.05% of GDP growth in Sub-Saharan Africa. An average investment proxy as gross fixed capital formation is 19% in Africa. This is lower than the 25% of Sub-Saharan Africa and 49% of investments in Asia-Pacific, but lower than the 8.6% in low income countries.

Financial openness proxy as FDI/GDP ratio in Africa is 2.7%, this is much higher than FDI/GDP of 0.7% in low income countries, 1.5% in Asia- Pacific and 0.41% in Sub-Saharan Africa. Manufacturing value is $4,553,320

Growth in employment is averagely 2.9% in Africa, as per the Conference board database, 2015 while, Population growth is 2.4% in Africa and is higher, compared to low income countries of 1.5% and 1.17% in Asia-Pacific but lower than 2.7% of Sub-Saharan Africa as shown in the (WDI, 2015), over the period of the study.

Table 3.3: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max	Observations
Labour Productivity	5062.617	4760.746	645.8616	21134.06	600
Remittances	2.227774	2.570737	.000039	14.58351	567
GDP per capita	1.611339	4.993255	-26.28907	54.95331	600
Investment	19.14834	6.962468	0	40.31781	579
Financial Openness	2.738478	4.20194	-5.980459	42.84896	598
Manufacturing value	4553320	2.65e+07	0	2.03e+08	570
Employment Growth	2.945064	2.616311	-16.043	22.8662	600
Population Growth	2.479564	.9237034	-1.664223	7.633476	600

Table 3.4 presents the bivariate correlations among the variables. Labour productivity is significant and positively correlates to remittance and GDP per capita growth. While, it surprisingly correlates negatively with financial openness, manufacturing, employment growth and population growth, it is significant to manufacturing and population growth. Remittance inflows negatively correlate with population growth, although significant to its inflow. The results generally show relatively low correlations among the variables. Additionally, we assessed whether multicollinearity was a problem by computing the variance inflation factors (VIFs). None of the VIFs approached the threshold value of 10 suggested by Neter, Wasserman, & Kutner (1985).

Table 3.4: Pairwise correlation among variables

	LabProd	Rem	Gdpcap	Invest	Finope	Manuv	EmpGrwt	PopGrwth
Lab Prod	1.000							
Remittance	0.017**	1.000						
GDP/capita	0.092***	0.131	1.000					
Invest	0.246	0.186	0.196	1.000				
Finopen	-0.045*	0.007*	0.115	0.171	1.000			
Manuv	-0.083*	0.125	-0.003*	0.098*	-0.033*	1.000		
EmplGrwth	-0.057*	0.016*	0.122	0.091*	0.011*	0.004*	1.000	
PopGrwth	-0.565	-0.140	-0.114	- .032*	0.027*	0.069*	0.174	1.000

3.6.2. Discussion of regression results of the impact of remittances on labour productivity

Clearly, from the GMM regression results in Table 3.5, we show that previous productivity of labour has a positive impact on current labour productivity. We employed the GMM due to the lag effect of the dependent variable- labour productivity. This possibly introduces correlation of the error terms of labour productivity the dependent variable and its lag term which is corrected by the GMM. The fixed effect and random effect although they are panel estimation techniques they do not correct endogeniety entirely. Our regression results show that the AR1 is 0.060 and AR2 is 0.351 whiles the Sargan test indicates 0.947. These suggest that our regression results are adequate. An increase in remittance inflow has a significantly positive impact on labour productivity. This suggests that although remittances are sent basically with altruistic motives, it is not just used for consumption or leisure. It is also employed as fees and payments for acquisition of skills and training strengthening the idea that international migrants' remittances indeed are used in a manner that leads to labour productivity. Visible from the findings, it is worth noting that while high life- expectancy in insignificant to labour productivity, it does have a positive impact. It may be argued that the higher the average life expectancy, the more people become productive, effective and lead to

Beyond remittances, economic growth through per capita income is important for increasing productivity of labour. Intuitively, increasing labour productivity affects living standards of people as GDP per capita increases reflects real income to people and hence improves their ability to purchase and consume desired goods and enjoy lots of leisure, also improving their housing, finance their education and contribute to social and environmental programs. Labour productivity growth also helps businesses to be more profitable contributing to GDP per capital growth. Financial openness proxy as Foreign Direct Investment (FDI) flow to GDP ratio, significantly and positively increases labour productivity. The inflow of FDI indicates the inflow of capital, knowledge, skill and expertise from industrialised countries to development countries.

This has an immense impact on domestic labour productivity. The financial inflows from inward FDI flow ease credit constraints and lubricate business endeavours by providing need funds and raising labour productivity. Employment growth, however, robustly and significantly reduces labour productivity. It could be inferred that increasing employment leads to abundant supply of jobs, thus giving the impetus for the reduction in the productivity of labour due shirking on the part of labour. Population growth is also significantly positive to labour productivity. An increase in population growth indicates abundant supply of labour. Increase in labour force signals cheap labour and lead to reduction in wages. The reduction in wages becomes a disincentive for productivity of labour

3.6.3 Remittance and Capital Accumulation Descriptive Statistics

We further discuss results of our second model in equation 6. It is an unbalance panel showing the impact of remittance on capital accumulation. We first explore the variables in a descriptive statistics in Table 3.6. Capital accumulation is proxy as gross domestic savings to GDP in Africa is averagely is 14% which is rather low as compared to the gross domestic savings to GDP of 28% in low income countries, 17% in Sub-Saharan Africa and 36.4% in

Asia-Pacific. The average remittances received to GDP ratio is 2.4% in Africa, this are much higher than 1.5% and 0.62% received in Sub-Saharan Africa and Asia-Pacific region respectively. However these are much lower compared to 4.8% received in the low income countries. Financial openness proxy as foreign direct investment to GDP ratio recorded an average of 2.7%, this much higher than the 0.7% in low income countries, 0.42% in Sub-. Again, investment which is proxy as gross fixed capital formation to GDP recorded an average of 19% under the period, comparing to 8.6% in the low income countries, 25% in Sub- Saharan Africa and 48.7% of investments in Asia-Pacific countries in that same period. While GDP per capita growth averaged 1.5%, which are higher, comparing to 0.05% and

-0.47% recorded in Sub-Saharan Africa and low income countries respectively. The Asia-Pacific region however recorded an average of 4.66% which is much higher than that of Africa. Human capital proxy as the percentage of net of secondary school enrolment is averagely 40 in Africa compared to 38 in Asia-Pacific countries, 23 in Sub- Saharan Africa and 19 in low income countries. Average trade to GDP ratio in Africa is 60% compared to 41.35% in low income countries, 54.5% in Sub- Saharan Africa and 41.19% in Asia-Pacific countries. Age dependency indicates the proportion of dependents per 100 working age, averagely in Africa is 86% as compared to 89% in low income countries, 89% in Sub-Saharan Africa and 49% in Asia-Pacific countries. Real interest rate is averagely 10% in Africa.

Table 3.6: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Capital Accum	579	13.66061	10.97020	-33.41301	57.06182
Remittances	501	2.42449	2.61532	.00004	14.58351
Fin Openness	595	2.74416	4.21163	-5.98046	42.84896
Investment	579	19.14834	6.96247	0	40.31781
GDP/capita	600	1.51073	4.62366	-27.14594	30.34408
Human Capital	393	40.07172	27.37636	5.16489	110.76360
Trade	598	60.29282	23.33337	10.74832	178.9938
Age dependency	600	86.53102	15.33133	43.47878	111.4636
Interest Rate	353	10.20820	24.03883	-94.21993	252.1153

Table 3.7 shows the bivariate correlations among the variables and evidently suggest that capital accumulation proxied is domestic saving correlates positively with remittances. Surprisingly, financial openness is negatively correlated to capital accumulation as well as age dependency. Investment, GDP per capita growth, human capital and trade are positively correlated to capital accumulation contrarily; inflation and interest rate, which summaries the macro economy, are negatively correlated to capital accumulation. Inflation generally erodes capital. Increasing interest rates reduce capital accumulation and the vice versa. The interaction between human capital and remittance positively correlate to capital accumulation. Moving in tandem, an increase in remittance receipts by skilled and trained persons leads to an increase in domestic savings and capital accumulation, as shown in Table 3.7.

Table 3.7: Bivariate Correlation between Variables

	Capital accumulation	Remittance	Financial openness	Investment.	Gdp/capita	Human Capital	Trade	Age dependency	IR	Rem*Humancap
Capital .Accumu.	1.									
Remittance	0.016	1.								
Financial Openness	-0.013	0.041	1.							
Investment	0.288	0.160	0.174	1.						
GDP/cap	0.206	0.064	0.140	0.264	1.					
Human 'Capital	0.533	0.166	0.053	-0.026	0.124	1.				
Trade	0.190	0.084	0.320	0.123	0.106	0.205	1.			
Age dependency	-0.390	- 0.187	0.090	-0.181	-0.073	-0.781	-0.219	1.		
Int.erest Rate	-0.296	0.014	-0.093	-0.203	-0.166	-0.181	-0.061	-0.016	1.	
Remittance*Humcap	0.187	0.834	-0.002	-0.040	0.094	0.514	0.163	-0.367	-0.162	1.

3.6.4 Discussion of Regression results of Remittance Impact on Capital Accumulation.

From the regression results in Table 3.8 we limit our discussion to the GMM result which we presume to be a better estimation technique for this study. The results show that the AR1 is 0.032 and AR2 is 0.217 and the Sargan test shows 0.719. These suggests the adequacy of the GMM model used. Clearly, we find that capital accumulated today increases as a result of domestic saving and of capital accumulated previously. Remittance receipts are significant to capital accumulation. This finding go to show that remittances are not only consume but are also invested. Remittances flow in to recipients as start-up capital for small businesses.

Table 3.8: Results of Remittance Impact on Capital Accumulation.

VARIABLES	Fixed Effect	Random Effect	GMM
Lag of Capital accumulation			0.415*
			(0.222)
Remittances	-0.051	-0.289	3.469*
	(0.588)	(0.551)	(1.820)
Human Capital	0.084*	0.103**	0.120**
	(0.050)	(0.044)	(0.055)
Remittance*Human Capital	0.028***	0.024**	0.078**
	(0.010)	(0.010)	(0.033)
Financial Openness	-0.042	-0.049	-1.358
	(0.082)	(0.081)	(0.927)
Investment	0.271***	0.288***	0.228**
	(0.073)	(0.071)	(0.794)
GDP per capital	0.100*	0.105*	0.069**
	(0.073)	(0.072)	(0.289)
Trade	0.073**	0.074**	0.224*
	(0.034)	(0.032)	(0.204)
Age Dependency	0.020	0.009	-0.551
	(0.060)	(0.057)	(0.537)
Interest Rate	0.084***	0.090***	0.104**
	(0.030)	(0.030)	(0.060)
Constant	1.298	1.302	47.979
	(6.920)	(6.864)	(67.396)
Observations	284	284	465
R-Square	0.2504	0.1207	
AR1			*0.032***
AR2			*0.217*
Sargan Test			*0.719*

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Remittances are put into savings and short term investments which invariably lead to capital accumulation. Indeed, Chiodi et al (2012) find that migrants' remittances exert a positive effect on investment and accelerate productive assets' accumulation contrary to Chami & Jahjal (2003) who indicated that remittance are employed in the consumption goods and does not really support savings and investment in the short run.

Human capital is significant and has an increasing beneficial effect on capital accumulation. Human capital is indeed the backbone for effective and viable investments. Enlighten and educated persons are able to make decision on profitable investment which invariably leads to capital accumulation. Mincer (1991) indeed admits that at the national level, human capital can be viewed as a factor of production coordinating with physical capital. This implies that the greater its contribution to growth is, the larger the volume of physical capital and vice versa. We further find that interaction between remittance and human capital also significantly and positively impact on capital accumulation. It is clear that although remittances increase savings and capital accumulation at 10% significance, the remittance-human capital interactive effect on capital accumulation is even much more, at 5% significance. Intuitively, we presume that when remittances flow in to educated and skilled recipients, they are in a better position to channel it into productive investments leading to an increase in capital accumulation. Educated persons are able to make better decisions and choices regarding savings and investments leading to increase in capital accumulation. This is in agreement with (Fishlow 1966; Barro 1991) who indicated that in the USA, it is the increasing levels of education that direct physical capital accumulation to effect human capital development in the 1900s.

Investment is key to capital accumulation; it is robustly significant and has a positive impact on capital accumulation. Investment robustly effects to an increase in domestic savings. GDP per capita growth significantly raises domestic savings (capital accumulation) and has a positive impact. Spending less than what one earns invariably leads to the accumulation of savings. And again, making investments in physical assets such as plants, equipment, machinery and raw materials as well as investments in financial assets all increases the accumulation of capital. It is worth noting that there is always a possibility that the return on an investment will differ from expectations. The amount of risk that investors are willing to

take is directly proportional to the potential returns on their investments. This is because investors have to be rewarded for taking additional risk. This reward is capital accumulated. GDP per capita growth has a positive and significant effect on capital accumulation. This is without a doubt, as growth in GDP per capita is a direct indication of economic growth and improvement in living standards. Improved living leads to wealth creation through savings and investment and the accumulation of capital. Trade is positively significant to domestic saving and capital accumulation; increase in trade moves in tandem with wealth creation leading to capital accumulation. Interest rate robustly increases domestic saving positively and significantly. At higher interest rates there is greater urge to invest as investors are most encouraged to lock in their monies in investments order to earn the interest thereof to mitigate the risk of investing. Higher interest rates invariably encourage more saving and reduce inflation.

3.7 Chapter Summary

In this study, we investigated the impact of remittances on labour productivity and capital accumulation in Africa. We concluded that previous years' labour productivity has a direct impact on today's labour productivity. Similarly, previously accumulated capital determines the level of capital accumulated today. Again, we also found that remittances are imperative to labour productivity and capital accumulation. However, in countries that record high life expectancy, remittances significantly lower labour productivity. Possibly remittances flowing into the hands of the age is basically for consumption smoothing and therefore does not directly lead to labour productivity.

We also concluded that growth of GDP per capita is crucial for labour productivity and capital accumulation. Economic growth and improvement in standard of living are indications of growth in GDP per capita. An increase in foreign direct investment inflows

leads to an increase in labour productivity. Population growth does influence labour productivity.

We indeed, concluded that, increasing human capital accumulation moves in tandem with physical capital accumulation. Education makes persons more circumspect in taking investment decisions. They careful consider investment options that tend to offer higher return. Furthermore if remittances are received by educated persons their effect in capital accumulation is much higher. We find that increase in trade leads to an increase in wealth and capital accumulation. Increasing interest rate is an incentive to increase investments hence it leads to domestic saving and capital accumulation.

CHAPTER FOUR

WILL REMITTANCES INTO AFRICA AVAIL FOR PRODUCTIVITY GROWTH?

4.0 Introduction

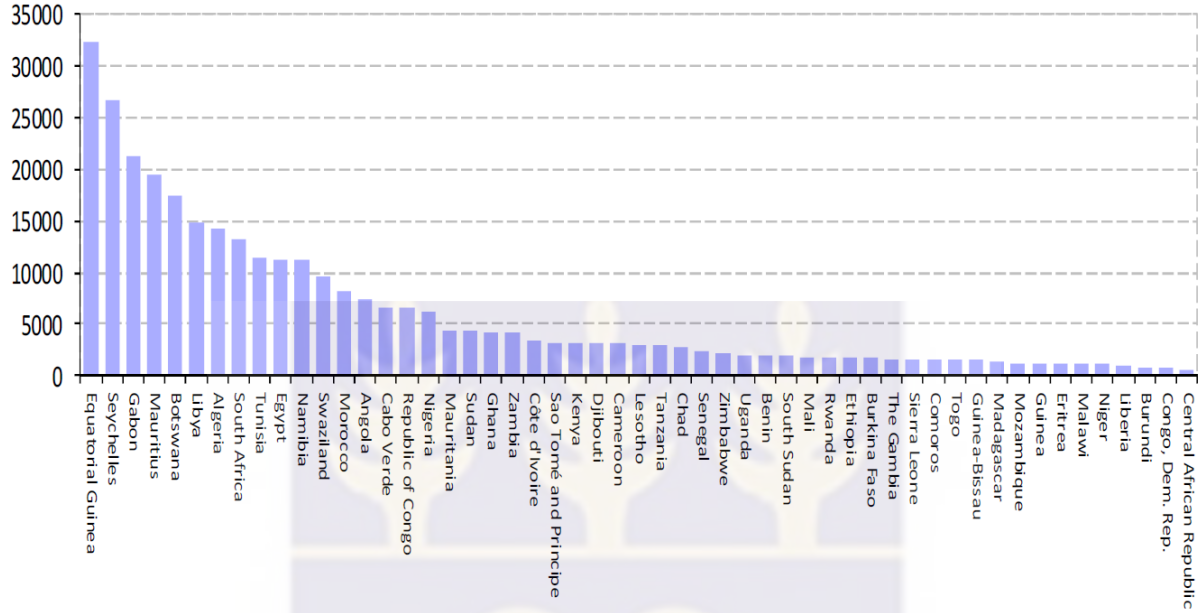
In Chapter four, the study investigates the influences of international migrants' remittances have on the components of TFP in selected African countries. The study includes a dynamic panel data model on twenty three African countries for 25 years from the period 1989–2013. The study employed the Data Envelopment Analysis (DEA) of the Malmquist productivity index approach developed by Färe et al., 1994 to decompose TFP into technical change, efficiency and TFP growth. The estimation technique employed in this study is the Seemingly Unrelated Regressions (SUR) model as introduced by Zeller, (1962). The chapter proceeds by first discussing the background to the study in section 4.1. In section 4.2 the chapter further gives insight into the conceptualisation of the relationship between remittances and each of the components of TFP. This is followed by Section 4.3 which looks at the review of empirical literature whilst section 4.4 explains the methodology and variables description. This section also includes the justification of the use of the Malmquist productivity index approach in the decomposition of TFP and also discusses the estimation technique. The presentation of empirical results and its discussion can be found in section4.5. Section 4.6 concludes with a chapter summary and policy implications.

4.1 Back ground of the study

Ironically, while some countries in Africa remain more prosperous and wealthy, the vast majority of Africa remains in abject poverty. In Figure 4.1, it is observe that within the period of 2010-2014, less than a third of African countries recorded over US$ 10,000 in GDP per capita, with the highest records in the Equatorial Guinea and the Seychelles with over US$30,000 and US$25,000 respectively. The least was recorded in the Central Africa

Republic and the Democratic Republic of Congo with an amount far less than US$1,000 (IMF, 2015).

Figure: 4.1 GDP per Capita of African countries for the period of 2010-2014



Source: IMF World Economic Outlook, October 2015.

Millions of dollars are donated to several African countries year on year from capital rich countries all over the world, but it does not seem to ignite the desired growth (Aid for Africa report, 2015). While, other countries like Equatorial Guinea, The Seychelles, Gabon, Mauritius, Botswana, Libya, Algeria, South Africa, Tunisia, etc., are doing so much better in terms of GDP per capita growth it seems like some African's countries (the Central African Republic, the Democratic Republic of Congo, Burundi, Liberia, Niger, Malawi, etc.) are a bit more sluggish and not pulling their weight. This is clearly, an indication of inequality in the level of income and disparity in living standards among African countries.

The ground-breaking article by Robert Solow (1956) explains that in a comprehensive neoclassical production function, it is TFP that drives the growth in income per capita of any economy in the long. TFP is thus explain to be that portion of output that cannot be assigned

as resulting from other inputs used in production process. The level of TFP is determined by how efficiently and intensely these inputs are utilized in a production process.

Cross-country differentials in TFP are attributable to the dissimilar nature in the physical technologies used by various countries and the level of efficiency with which those technologies are employed. Barajas, Chami, Fullenkamp, Gapen and Montiel, (2009) reveal that the huge remittance receipts may affect TFP growth through their impact on the level efficiency of domestic investment. Its effects on the size of productive sectors domestically lead to the generating of dynamic production externalities which invariably also affect TFP. International migrants' remittances flow in to enhance household consumption. This mostly compensate for productivity losses partly arising from the 'brain drain', natural disasters, low human resource quality thus it mostly becomes a substitute for innovations and technical efficiency. Obviously, remittance money may serve as a lubricant aiding to bring innovative ideas and process to life to spur on growth in productivity. Remittance inflows can aid recipients to afford educating themselves and their children which is necessary for productivity. Remittances can also help its recipients to acquire and access equipment needed for innovation leading to increase in productivity and economic growth directly.

There is still, however, divergence among African countries and the world at large today. The theory of "catching up" assumes that in unindustrialized economies, technology is traded freely and is made available to meet the need for convergence. It is worth noting that an attempt to catch-up is always at the expense of cash. Given that capital is scarce, the lack of it makes capital expensive to developing economies, preventing the catch-up on growth. Indeed this "catching –up'' is often a mirage, presenting a trap for such countries in a low-efficiency cycle because efficient technology may be too expensive to be acquired. Danquah and Ouattara, (2014), by decomposing Total Factors Productivity show that it embraces features of technical change, technical efficiency and TFP growth which are crucial to the

growth of an economy. The macro-economic consequences of remittances as finance for development gives indication that whiles remittances may affect Total Factor Productivity, ascertaining those particular facets of TFP which significantly are affected by remittance inflows are vital (Monterey, 2002). This is novel and will provide a lot more insight for policy formulation and direction.

We contribute to method as well as literature in this paper, by examining the effect of remittance on each of the three components of TFP - technical change, technical efficiency and TFP growth separately which is novel. We further examine if human capital plays a role in influencing remittance effect on technical change, technical efficiency and TFP growth separately in countries with rich skilled labour (human capital) in Africa, which will be informative for policy directions.

The extant literature, however, has not established the direct relationship between remittance and the component parts of TFP: technical change (innovation), technical efficiency and TFP growth. Furthermore, the existing literatures clearly show that remittances significantly and positively impact financial openness (Beine, et al 2012). As a matter of fact, Bekaert et al (2011) find that financial openness positively impacts both growth in investment as well as factor productivity however it was evident that financial openness has a much more effect on factor productivity than it has on investment Thus the objectives of this paper are first to ascertains if remittance affects technical change and secondly it investigates how remittances enhance efficiency and also TFP growth. Finally, the study interact remittances and financial openness to examine their joint effect on each component of TFP.

4.2 Understanding the relationship between TFP components and Remittances

4.2.1Technical Change and Remittance

Several economies have been preoccupied with the setbacks of cyclical fluctuation within those economies at the expense of neglecting technical change basically beyond the Great Depression, (Jewkes, Sawers & Stillerman, 1956). Schumpeter attempted to place technical change at the heart of the theory of global development emphasising the fact that innovation is the main source of dynamism in capitalist development.

Technical change leads to innovative processes that stems from varied and related pedigrees. Economic literature posits that the elements that predict Technical Change is propelled from two basic theoretical approaches. The "Demand pull" on one hand and the "Technology push" on the other which defines technology as autonomous or quasi-autonomous factors at least in the short run (Dosi, 1982).

Rosenberg & Mowery (1978) further exhaustively explain the 'demand-pull' theory of Technical Change is in the light of 'recognition of needs' by the productive unit in a market. It is perceived that in every market at every given time, needs of purchasers which includes both consumption and intermediate goods need to be met. These needs create the impetus for targets which is met through the deployment of technological prowess and effort on the part of producers. The need for food, shelter, clothing, communication and needs expressed in various form must be satisfied.

The demand pattern sends signals as to the desire, taste and preference of consumers. In a growing economy, the income elasticity of the demand of the consumers is different giving the relative price of their desired commodity. The theory thus argues that the growth in income reduces budget constraint of the consumer propelling manufacturers to increase their capacity and capability to ride on the "utility dimensions" advantage. This becomes an

incentive for the commencement of innovative processes and products to satisfy consumer needs and bring to the market their new/improved goods (Dosi, 1982).

Intuitively, remittances play a key role in augmenting disposable income and expanding household consumption of goods and services. For instance, Stahl and Arnold (1986) explain that remittances into Asia are mostly spent on home made goods and services and as a result it provides an important incentive for the growth of local industries and the economy as a whole. In view of this, remittances are essential in contributing to the rise in prosperity of recipients as well as expanding the consumption expenditure and having developmental influence.

As consumption increases, demand is affected positively, forcing producers to innovate to meet demand. This "one-directional" determination of the innovative activity from consumers/users' needs to producers' innovative output as confirmed in the studies of Myers & Marquis, (1969).

On the other hand "Technological push" stems from changes in market conditions that affect demand patterns. Without a doubt, the relative distributive shares in costs of production create the opportunities that enable producers to follow technological paths at various levels of their production process. This stimulates a technical change through innovativeness.

Dosi, (1982) defines technology from the "Technological push" view point as an acquisition of set of pieces of knowledge both directly "practical" and "theoretical" including the know-how into methods, procedures, experience through successes and failures and also of course insight into the build-up of physical devices and equipment. Remittance comes in handy for purposes of human development. It affords remittance recipients the ability to access education, training and skill acquisition, enhancing the individual's ability to embrace a

technical change or innovation. It further boosts their purchasing power, leading to an increase in consumption and invariably pushes up market demand of goods and services.

4.2.2 Efficiency and Remittance

It is sufficiently evidence that weightier portions of remittances are invested (Amuedo-Dorantes & Pozo. 2006; Adams, 2007) although empirical studies gives credence to the findings that remittances are believe to be directed primarily towards consumption and hence do not lead to capital accumulation (Martin 1991). Indeed Adams (2007) reveals that households that receive remittances invest much more than average households without remittance receipts.

Remittances are believed to flow in as capital affecting investment through the Keynes theory of 'marginal efficiency effect'. In general, Keynes theory put forth that "the marginal efficiency of capital is equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital asset during its life just equal to its supply price." The theory further argues that in financing investments, households and firms will either borrow or reduce savings. However, if interest rates are lower, it becomes cheaper to borrow as savings give a lower return making investment relatively more attractive.

Remittance capital flowing in through the banks serve as a cheaper source of funds for the banks hence interest rates on such funds are much reduced leading to an increase in investments. Remittances therefore enhance economic efficiency as they reduce the cost of funds spurring more productive ventures.

4.2.3 TFP Growth and Remittance

Inflows of remittances through the banking sector have the propensity of loosening credit to domestic businesses. Studies have shown that productivity is the way in which growth in credits are enhanced. For instance Levine (2004) shows that growth in financial wealth must be accompanied with increase in the rates of savings, increase in investments, increase in technology, innovativeness and productivity gains.

The intuition is that remittances inflows enhance financial development. Schumpeter (1912) and Bagehot (1973) explain that financial development invariably enhances Total Factor Productivity growth through its efficiency in the allocation and re-allocation of capital. The re-allocative mechanism involves the practise of creative destruction supported by the movement of resources from industries with deteriorating growth prospects to others with good growth prospects. Remittance obviates financial frictions by increasing the magnitude of funds flowing through the banking system, increasing the bank's capital base enhancing financial intermediation and efficient allocation of resource (Ratha 2009).

It is acknowledged that the presence of financial frictions leads to an increased misallocation of scarce resources. In this light, Hsieh & Klenow (2007) and Restuccia & Rogerson (2007), find that the lower levels of TFP growth of developing countries can be explained by the misallocation of resources across productive units. When financial frictions are present, the misallocation of resources is increased. The intuition here is that as remittances flow into the financial systems it leads to financial development and the reduction of financial frictions. In this light the cost of transactions and the information associated with capital reallocation is lowered leading to a boost in TFP growth.

The analytical basis for this inkling is put out in some empirical studies such as Levine (1997), Bencivenga, Smith & Starr (1995). Buera & Shin (2008), Buera, Kaboski & Shin

(2008), Aghion & Howitt, (2005), Greenwald, Kohn & Stiglitz (1990). These studies show how financial restrictions lead to an inefficient allocation either across sectors or across activities with differential productivities. Other empirical evidence in support of the assertion includes Hartmann et al. (2007), and Fisman & Love (2004).

4. 3 Review of Literature

TFP is the only most significant factor of cross-country income per capita differences, business cycle frequencies and economic growth over the longer term (Comin,2006). Klenow & Rodriguez-Clare (1997); Hall & Jones (1999) confirm that indeed the preponderance of the per capita income gaps between rich and poor economies is largely due to cross-country inequality in TFP.

Abramovitz (1986) clarifies, that the fact that a country is poor, does not warrant that its catch-up on growth will be achieved, but rather critically, there is the need for 'Social Capabilities' which includes the capability to attract capital, adopt new technology and partake in global markets. According to Abramovitz, (1986) truly these fundamentals must be the bases in an economy before any catch-up growth (convergence) can occur. Pradhan, Upadhyay, & Upadhyaya (2008) find with a sample of 39 unindustrialized economies over the period 1980-2004 that, remittances increase their effect on income per capita.

Indeed, Barajas, Chami, Fullenkamp, Gapen & Montiel, (2009) admit that the steady inflows of remittances are a source of inexpensive capital required for growth of TFP.

Remittances affect TFP growth through different mechanisms by the dynamic production externalities and its fluctuating the magnitude of the generated in an economy. This dynamism in production externalities may be beneficial or detrimental. With a panel of 99 developing economies across the period of 1975–2003, Aggarwal, Demirguc-Kunt, & Martínez Pería (2006) indicate that inflows of remittance impact TFP through the expansion

of the magnitude of financial resources flowing through the banking system. Beine, et al, (2012) show that remittances have a significant effect on the financial openness in developing economies and a strong positive effect on the economic. Increase in remittances inflows are linked with the increase in the ratios banking deposits as well as credit to GDP. This invariably, affects the receiving country's formal financial sector positively and its capital allocation.

Commercial banks in developing economies usually take advantage of their access to remittances inflows to source for capital from international bond markets. These enable them to finance infrastructural as well as other developmental projects (Ketkar & Ratha, 2005). Most countries' creditworthiness are improve sue to their access to large remittances on the international capital markets (Ratha, 2007). Remittances indeed enhance the efficiency of investment by the worth they add to the domestic financial system and their intermediation process. This truly supports the growth in GDP if the financial markets are comparatively undeveloped. Remittances ease access to credit by obviating the difficulties associated to it which normally are forced on households by a small financial sector. The indication is that, irrespective of the conditions prevailing in the financial sector and the country in which it is, remittances have the capacity of increasing the amount of financial wealth of the banking system. These actually enhance the development of the financial sector and thus increasing economic growth through increased economies of scale within the financial intermediation.

Barajas et al. (2011) show that TFP is boosted through migrants' remittances due to their positive impact on the exchange rate resulting in appreciation of the real exchange rate, which makes remittance receiving countries' exports less competitive. Empirical evidence from Acosta, Lartey & Mandelman (2007, 2008); Montiel (2006) suggests that remittances inflows are connected to the equilibrium of an increase in real exchange rate implies potential for Dutch disease effects in remittance-receiving countries.

Abdih, Chami, Dagher, & Montiel (2012) show that remittance also inflows destabilizes good governance domestically, in the sense that, its presence decreases the vigilance of the citizenry. It also serves as a disincentives for the private citizens to monitor and to keep up with the scrutiny on domestic government's policy performance. This has widespread implications for the quality of the domestic policy environment that may have adverse effects for TFP growth and growth in other production inputs. Mostly especially in this is the fact that the costs of poor macroeconomic performance outlook in the domestic front are partially shifted on to the migrants, who continue to increase their transfers to domestic residents when things go badly at home, remittances create a moral hazard problem for the domestic government.

Clearly, remittances impact TFP through production externalities. However, the effect of remittance on TFP is unclear. There is the likelihood that these conflicting findings may be due to an aspect/component of Total Factor Productivity which is ignored. Remittances can have positive or negative effect on TFP. While remittances expand the quantity of funds in banking system and thus affect TFP through intermediation (Aggarwal et al 2006: WB) and improving the creditworthiness of nations, enhancing access to international capital markets for financing infrastructure and other development projects and providing funds for investment into productive ventures (Ratha, 2007: WB). It also has a debilitating effect. Remittances negatively affect TFP by reducing the incentive for private citizens to monitor and manage domestic government's policy performances and reducing efficiency and undermine good domestic governance (Abdih et al 2012: IMF). Remittance reduces productivity through Dutch disease and moral hazards effect (Acosta et al, 2009: JIE)

Senbetta (2013); Fayissah & Nsiah (2010) adopt the growth accounting procedure in measuring Total Factor Productivity in their remittance and TFP studies.

Evidently, the direct impact of remittance on each of the components of TFP is completely ignored. To be more elucidating as to how remittance impact on TFP, it is worth decomposing Total Factor Productivity into its mutually exclusive and exhaustive components: technical change (innovation), technical efficiency and TFP growth, and then determine the extent and the magnitude by which remittance impacts these components individually, which is very uncommon in the existing literature.

While the developmental influence on the domestic front has an even higher multiplier effect even more on remittances channelled into consumption, those directed into investment in real assets such as building infrastructure, schools, houses, among others, contribute to improvement and modernization of local economic activities giving rise to small enterprises. This serves as a key impulse to start or keep development on a local or regional scale (Stojanov, Strielkowski, & Drbohlav, 2011).

Superior capital equipment directly makes individuals, businesses and countries more productively efficient. Increased productive efficiency leads to increased standards of living – the purpose of economic growth. A business does not see an immediate increase in revenue when it develops capital goods. To make it economically viable to increase or improve the capital structure, a company must have a pool of saved funds to draw upon. This pool of funds needs to last until the new capital goods lead to additional revenue. Increased capital investment allows for more research and development in the capital structure.

With regard to this, Skeldon (2002) argues, using the example of the expenditure on private house construction, that remittance can stimulate local building enterprise, helping to generate employment and trade in materials. The key point is that the so-called consumption expenditure has investment externalities with a clear and hard distinction among technical change, efficiency and productivity growth.

4.4 Methodology and Data Descriptions

4.4.1 Malmquist Productivity Index

Notwithstanding the major setbacks with the growth accounting approach (also known as the residual approach) (Solow, 1956), it is the mainstay of the vast majority of the existing empirical studies in measuring Total Factor Productivity. The growth accounting approach assumes that all the units of production are efficient and does not distinguish between technical progress and changes in technical efficiency. The discrete modification for technical improvement and efficiency change that accompanies labour or capital stock is completely ignored in the growth accounting approach.

Addressing this deficiency, Debreu (1951), Koopmans (1951), and Farell (1957) employ the frontier approach to their work, providing a panacea to rectify this setback. Generally, the frontier approach is viewed mainly under two broad categories: the parametric-stochastic and non-parametric-deterministic. Although the specification of the functional form of the production function as well as the distributions of the stochastic parts is required under the parametric-stochastic frontier analysis (SFA), it reflects robustness against measurement errors. The nonparametric-deterministic method, DEA, however, employs the use of linear programming methods to fit a piecewise linear quasi-convex hull around the data and does not require functional form assumptions or distributional assumptions although more sensitive to outliers.

Both the parametric SFA and the non-parametric Malmquist productivity index have been employed in the growth literature with respect to the measurement of productivity and its components - technical change and technical efficiency change. However, it is worth noting that results of most empirical studies employing the SFA show that estimates of TFP growth and components vary in sign and magnitudes according to different econometric specifications.

In some cases, model specifications under the SFA are counter intuitive, the results produce are inconsistent with the literature that undergirds it (Kumbhakar & Wang, 2005; Garcia et al., 2008). The Malmquist productivity index however, appears to be the method that is more common in the study of productivity of countries than the SFA (Färe, Grosskopf, Norris, & Zhang, 1994; Taskin & Zaim, 1997; Maudos, Pastor & Serrano 1999; Rao & Coelli, 1999; Krüger, 2003; Headey et al., 2010; Danquah & Ouattara, 2014). Lovell (1996, p. 329), for instance, finds the Malmquist productivity index approach based on the data envelopment analysis (DEA), is regarded a better and an exhaustive measure. It also gives more satisfactory precise results as compared to SFA in the productivity measurement.

In this paper however, study uses the output based Malmquist productivity index approach in the framework of the larger economy. Here real GDP output is provided by the various countries under this study and the physical capital stock and labour are the given inputs employed to compute technical change, efficiency change and productivity growth for the countries in our sample as done by Vandenbussche et al. (2006) in the decomposition of TFP.

4.4.2 Model Estimation Technique

The study estimates a dynamic panel data model using data on twenty three African countries for 25 years from the period 1989–2013. Panel data estimation techniques enhance the variability of the data and allows for an increase in the degrees of freedom. It also includes within-country standard deviation as well as between-country standard deviation being the time variation effect. Our model specification in this study is similar to the work of Zeller, (1962) and Danquah and Ouattara, (2014) on their empirical growth model. Total Factor Productivity was decomposed into its constituent parts: technical change, efficiency and TFP growth and all three employed as dependent variables with remittances as the primary independent variables. The model estimated is given as follows:

$$y_{it} = \beta_1 Rem_{it} + \beta_2 Rem * Finopen_{it} + \sum_{j=3}^{N} \beta j \, x_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

Where y_{it} represents the three dependent variables- technical change, efficiency and TFP growth for country *'i'*, subscript *'t'* represents time. β_1 represents the coefficient of international migrant personal remittance. Data on Personal remittance is sourced from the World Development Indicators. β_2 represents the interactive effect between remittances and financial openness. The intuition behind the interaction is that if the inflow of remittances is multiplied by financial openness which is proxy as foreign direct investment, an increase in the interaction term may lead to TFP growth. Both remittance and financial openness are included in the model to capture their independent effects on technical change, efficiency and Total Factor Productivity growth. Bekaert et al (2011) show that financial openness is accompanied with increases in the of economic growth rates and that then affect openness through factor productivity growth is even more important than the effect on capital growth. The study further included the product of remittance and financial openness to ascertain the interactive effect of remittance and financial openness.

The study examined how this relationship differs from country to country taking into consideration the levels of financial openness. Financial openness was measured as foreign direct investment (FDI /GDP). Bekaert et al (2011) find that financial openness positively impacts both growth in investment as well as factor productivity however it was evident that financial openness has a larger effect on factor productivity than it has on investment. X_{it} is a set of control variable which include human capital, government consumption expenditure, broad money, financial openness, GDP growth, polity 2 and population growth; have been extensively used in literature.

It is expected that there will be a positive relation between human capital and all three dependent variables- technical change, efficiency and TFP growth. Human capital is

measured as secondary school enrolment. Psacharopoulos & Woodhall, (1997) emphasizes that human capital has the capability to escalate the total factor productivity through its existing workforce in several ways which has immense benefits for economic progress and development. We anticipate that government consumption expenditure will positively impact TFP as purported by Wyatt (2005) who finds that both the scale and the composition of governments final consumption expenditure will affect the level and the growth rate of total factor productivity. It is believed that government expenditure opens up the fiscal economy and enhances economic activity which spurs the growth of the economy. We therefore expect government expenditure to have a positive impact on economic development. Wu, Tang & Lin (2010) find that government expenditure is helpful to economic growth after finding that their empirical results strongly support Wagner's law. Financial openness is anticipated to have a positive impact on total factor productivity as purported by Bekaert et al (2011).

The expectation is that broad money will have a negative effect on TFP in with Diewert (2015) who asserts that an increase in monetary holdings have opportunity cost by allocating financial capital into monetary deposits. This has implications of reducing investment in real assets. Meanwhile Total Factor Productivity (TFP) does not take into account holdings of monetary assets. Hence large increases in holdings suggest an increase in monetary assets to the list of traditional capital services which reduces TFP generally. GDP growth is expected to have a positive effect on TFP in synchrony with Lucas (1988) shows that GDP growth as economic growth measure is traditionally attributed to the increase in total factor productivity arising from technological innovation. Internationally, there is a strong relationship between productivity and quality of governance, using an index of governance based on rule of law, quality of bureaucracy, and corruption it therefore expected Polity 2 will have a positive relationship with total factor productivity. Pritchett (1999) finds that there is either no correlation or a weak negative correlation between measures of total factor productivity

growth and population growth it is presume that population growth is likely to have a negative or no effect on TFP.

4.4.3 Estimation Technique

The estimation technique employed in this study is the Seemingly Unrelated Regressions (SUR) model developed by Zeller, (1962). The SUR model explains the difference in not just one dependent variable, as in the "univariate multiple regression models", but the disparity of the numbers of dependent variables with an independent and other control variables. In this paper we study if remittance inflows into Africa have the potential of affecting technical change, efficiency and TFP growth. We also include other control variables that affect technical change, efficiency and TFP growth. Thus the study has three dependent variables including technical change- (innovation), efficiency and TFP growth and remittance as the main independent variable with other controls as well as the error terms specific to each individual problem.

Geweke (2003, p. 162) explains that the SUR model is the most extensively used econometric model after linear regressions. The SUR normally runs as a system of equations that provides a very simple but a useful representation. The SUR model collectively employs two or more regression equation relations that give the credence to be analysed with data on the dependent and independent variables. Over decades, the single regression relations were fitted one by one and using ordinary least squares techniques to be justified by the use of single equation to estimate the optimal properties, e.g. the least squares estimators are the best linear unbiased estimators according to the well-known Gauss Markov theorem, and maximum likelihood estimators when single equation normal likelihood functions are employed.

Zeller, (2006) further explains that the regression equations are related if, and only if, their error terms in their different regressions equations are correlated and not unrelated and that

the sample information in other regressions can be employed to expand the quality and the precision of estimation of parameters in any agreed regression equation under a wide range of conditions. The operational SUR, therefore, is agreed to be the best linear unbiased estimators for the parameters of the set of regression equations put forward which uniformly dominate the single equation least squares estimators under the broad range of conditions. This, Zeller claims, was overlooked in the literature during the pre-1962 era.

Additionally the SUR estimator is found to be the best linear unbiased technique with the normality assumption for the error terms, maximum likelihood and "diffuse prior" Bayesian estimator under frequently encountered conditions. Moreover, by joint analysis of the set of regression equations, it becomes more precise estimates as well as predictions are obtained leads to a better solution to many applied problems rather than equation by equation analysis.

When error terms in the different equations are mutually uncorrelated, the SUR estimator further causes the lessening to single equation least squares estimators. And, it also suggests that the equations are truly unrelated. By the use of SUR techniques, we ensure better-quality tests of hypotheses with regards to the regression coefficients and other parameters, values. Similarly too, considering the error terms correlations across equations, it encourages a better predictive prowess for the future values of the dependent variables.

The specific regression model estimated together to ascertain the impact of remittance on technical change- (innovation), technical efficiency and TFP growth is thus specified as:

$$Tech_{it}Eff_{it}Tfpgrowth_{it} = \alpha + \beta_1 Rem_{it} + \beta_2 HC_{it} + \beta_3 Govexp_{it} + \beta_4 Bm_{it} + \beta_5 finopenness_{it} + \beta_6 Gdpgrowth_{it} + \beta_7 Polity_{it} + \beta_8 Popgrowth_{it} + \mu_i + \varepsilon_{it} \quad (2)$$

4.4.4 Data Description

The study estimates the models by employing the SUR estimator which was developed by Zeller, (1962). The three dependent variables being estimated together include technical change *(Techch)* as innovation, efficiency *(Eff)* and TFP growth. Remittance is the primary independent variable. Remittance and other control variables were obtained from the World Bank – WDI, 2015. For the decomposition of Total factor Productivity; labour, capital and output data were sourced from the Penns World 2015 data. Unbalanced data were employed in the model.

Remittance *(Rem)* is measured as total personal remittance to GDP. Other controls include human capital *(Humcap)* measured as the gross secondary enrolment ratio irrespective of age. Secondary education begins the primary level of the basic school, and it normally targets at laying the right foundations which will be need lifelong learning and spurs into human development. Secondary school completes the delivery of basic education. By offering more subject- or skill-oriented instruction and the use of more specialized teachers, this invariably will lead to human capital development.

Government expenditure *(Govtexp)* measured as government final consumption expenditure includes all of government's current expenditures for the purchase of goods and services and for the payment of compensation of employees. It also includes most expenditure on national defence and security, but excludes government military expenditures that are part of government capital formation. Broad money *(Bm)* is a proxy used for measuring development and it is measured as broad money to GDP. It includes the total currency outside of banks, all the demand deposits beyond those of the central banks and government which includes all time savings, and foreign currency deposits of resident sectors other than the central government; all bank and traveller's cheques; and all other securities including certificates of deposit and commercial paper.

Financial openness *(Finopenness)* is measured as net foreign direct investment flows to GDP; we also included GDP growth which is measured as the percentage of annual growth rate of GDP at market prices based the local currency and aggregated based on constant 2005 U.S.$. Polity 2 is an index to measure governance type – from autocracy through to democracy. Then population growth *(Popgrowth)* is measured of annual population growth rate. All of these variables are sourced from the World Bank-WDI, 2015.

Table 4.1: Description of variables in Regression 1

Variables	Description	Sources	Expected Signs
TFP	Total Factor Productivity absolute figures	Penns World	
Techch	Technical Change (Innovation)	Penns World	
Eff	Efficiency	Penns World	
TFPgrowth	Growth in TFP	Penns World	
Rem	Total Personal Remittance to GDP	WDI, 2015	+/-
Humcap	Secondary School Enrolment ratio	WDI, 2015	+
Govexp	Government Final Consumption Expenditure	WDI, 2015	+
Bm	Broad Money to GDP	WDI, 2015	-
Finopenness	Financial openness proxy as net foreign direct investment flows to GDP,	WDI, 2015	+
GDP growth	Annual percentage growth rate of GDP	WDI, 2015	+
Polity	Polity 2 as an index to measure governance type –autocracy to democracy	Polity 2 database	+
Popgrowth	Annual Population Growth Rate,	WDI, 2015	-

(Benin, Botswana, Central Africa Republic, Cameroon, Côte dIvoire, Egypt, Gabon, Gambia, Ghana, Kenya, Malawi, Mali, Morocco, Mozambique, Niger, Nigeria, Senegal, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda).

4.5 Discussions of Empirical Results

4.5.1 Descriptive Statistics

In Table 4.2 we first employed descriptive statistics to ascertain the nature of the data being used. Technical change (innovation) is averagely 0.996 with variability of 0.07. Its maximum value is 1.344 and minimum is 0.788. The mean efficiency is 1% and lies between a minimum of 0.113 and maximum of 1.615 respectively with standard deviation of 0.09.

Table 4.2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Technical change	575	0.996431	0.067023	0.788	1.344
Efficiency	575	1.002344	0.090819	0.113	1.615
TFP Growth	575	0.995574	0.079322	0.12	1.568
Remittance /GDP	575	2.887135	3.14015	0.001778	15.4523
Human Capital	575	1.830115	0.421388	1.124828	2.846072
Government Expenditure/GDP	575	13.53561	4.327309	4.833249	31.55443
Broad Money/GDP	575	32.32868	20.53463	6.546494	113.9918
Financial openness	575	2.459682	3.599014	-8.58943	42.84896
GDP Growth	575	3.973392	4.264064	-36	33.73578
Polity2	575	0.352113	5.501896	-9	9
Population growth	575	2.501349	0.733001	0.341697	5.071227

Source: Authors compilation from Penns World Tables and WDI, 2015

The mean Total Factor Productivity growth for the period across the sampled countries is averagely 0.99 with a variability of 0.07. Highest TFP growth is 1.568 and lowest is 0.12. Average remittances received over the entire period across sample countries are 2.9% of GDP with variability of 3.1%. The highest of total remittance inflows is 15% of GDP and the lowest inflow is at 0.002% across the period of the study.

Human capital ranges between 1.125% and 2.846% of gross enrolment, with an average of 1.830%. Average Government expenditure to GDP is 13% with the highest expenditure of 31.554% and the lowest of 4.833%. Averagely broad money is 32% of GDP within the limits of 6.546% and 113.991% as lowest and highest over the period under consideration. FDI inflow as a proxy to financial openness fluctuated between -8.589% and 42.849% of GDP with a mean of 2.460%. An average of 5.50% GDP growth is recorded across countries under the study. The lowest and highest GDP growth is -36% and 33.74% respectively. Polity 2 shows an average score of 0.352 from autocracy with the score of -9 to democracy with a score of 9 with variability of 5.5. This signifies that the type of governance regime within the African countries under the period of coverage is typically anocratic. An anocratic

government features inherent qualities of political instability and ineffectiveness as well as an "incoherent mix of democratic and autocratic traits and practices". These regime types are particularly susceptible to outbreaks of armed conflict and unexpected or adverse changes in leadership. For population growth rate the mean is 2.5% with the lowest rate at 0.34% whiles the highest population growth rate of 5.07% within the sampled countries.

4.5.2 Pairwise correlations of variables

In Table 4.3, we show the pairwise correlation matrix for the variables that we employed in the empirical analysis. Generally, there is very low correlation between variables in the overall pairwise correlation matrix exhibit. With the exception of efficiency and TFP growth that exhibits a positively high correlation of 0.7, there is generally very low correlation between the pairs of variables. This suggests that the concern of multicolinearity is generally not an issue with respect to our model specifications. From our table, efficiency is significant but has negative correlation with technical change whiles remittances significantly correlate positively with technical change and TFP growth but not with efficiency. Human capital and GDP growth both significantly correlates with technical change, efficiency and TFP growth but has negative correlation with technical change. Again interestingly, whiles government expenditure significantly correlates with technical change, efficiency and TFP growth; it is moves negatively in tandem with efficiency and TFP growth.

Table 4.3: Pairwise Correlation of variables

	Technical change	Efficiency	TFP Growth	Remittance	Human Capital	Government Expenditure	Broad Money	Financial openness	GDP Growth	Polity 2	Population growth
Technical change	1										
Efficiency	-0.528***	1									
TFP Growth	0.190***	0.728***	1								
Remittance	0.021*	-0.026	0.004*	1							
Human Capital	-0.004*	0.012*	0.021*	-0.143***	1						
Government Expenditure	0.084**	-0.141***	-0.101**	-0.130***	0.265***	1					
Broad Money	0.095**	-0.123***	-0.055	0.330***	0.322***	0.297***	1				
Financial openness	0.043	0.023	0.039	0.091**	-0.067	0.002	0.073*	1			
GDP Growth	-0.095**	0.232***	0.183***	0.072*	0.033	-0.046	-0.0134	0.188***	1		
Polity2	-0.047	0.066	0.032	-0.153***	0.166***	0.276***	-0.057	0.119***	0.122***	1	
Population Growth	-0.016	0.012	-0.012	0.013	-0.427***	-0.246***	0.590***	0.021	0.064***	0.067	1

Source: Authors compilation from Penns World Tables and WDI, 2015, Showing significance levels of *** p<0.01, ** p<0.05, * p<0.1

4.5.3 Discussion of results

Table 4.4 exhibits our regression results. We investigate whether remittances significantly promote technical change (innovation), efficiency and TFP growth jointly. We employed the use of the seemingly unrelated regression model (Zeller, 1962) which is better because it explains a number of dependent variables with an independent and other control variables and not as in a univariate multiple regression models. It also provides a simple and useful representation of systems of equations (Geweke 2003, p. 162) and the joint analysis of a set of equations gives a more precise estimates and predictions leading to a better solution to many problems in the equation by equation analysis. Our correlation matrix in table 4.3 does not show high correlations and as such there were no issues of endogeneity in the data. Hence the use of the seemingly unrelated regression best suited over model.

Indeed we show that remittances are statistically and positively significant to technical change (innovation) and TFP growth on their own, but not with efficiency. International migrants' remittances are very beneficial to households, as it increases their disposable income. As households' disposable income increases, effective demand for industrial goods and services increase. This stimulates domestic innovative production with a positive spill over into the national economy (Skeldon, 2000; Ratha, 2003).

Table 4.4: Regression results

Variables	Seemingly Unrelated Estimations		
	Technical Change	Efficiency	TFP Growth
Remittance/GDP	0.0018*	-0.0010	0.0010*
	(0.001)	(0.001)	(0.001)
Human Capital	0.0155***	0.0091*	0.0248***
	(0.004)	(0.005)	(0.004)
Government Expenditure	0.0018***	-0.0029***	-0.0013**
	(0.000)	(0.001)	(0.001)
Broad Money	0.0005***	-0.0005***	-0.0000
	(0.000)	(0.000)	(0.000)
Financial openness	0.0025***	-0.0003	0.0018**
	(0.001)	(0.001)	(0.001)
GDP Growth	-0.0015***	0.0049***	0.0034***
	(0.000)	(0.001)	(0.001)
Polity2	-0.0011***	0.0010**	-0.0001
	(0.000)	(0.000)	(0.000)
Population Growth	0.0209***	-0.0101***	0.0086***
	(0.002)	(0.003)	(0.003)
Remittance * Financial openness	-0.0006**	0.0003	-0.0003
	(0.000)	(0.000)	(0.000)
Observations	568	568	568
Number of country	23	23	23

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

There is no doubt that innovation cannot happen without money. Remittances allow recipients to bring their ideas to life. The rewards of innovation when done right will almost always lead to productivity. Remittance inflows can aid recipients to acquire and access equipment's for innovation and lead to an increase in productivity growth directly. This finding is in agreement with theory, in that remittances expand income available to recipients for the acquisition of improved technologies and increases the appetite for sophistication and the adoption of new ideas which are 'pro-productive'. These notwithstanding, remittances are positively related to technical change thus remittance-recipients are able to afford the cost of innovation which invariably pushes the frontiers of tfp growth. The Economic Commission for Africa in its 2006 reports asserts that remittances have a positive impact on technological change in agricultural production and therefore increases growth through higher productivity

in Burkina Faso (Konseign, 2005). It is believed that households receiving remittances may have the capacity to access new and better ways of doing things thereby enhancing their productivity.

We find strong evidence indicating that human capital is statistically significant and has a positive effect on all components of total factor productivity- technical change (innovation), efficiency and TFP growth. Whiles it is significant at a 1% for technical change and TFP growth, it is significant at a10% with respect to efficiency. The implications of these findings are that education and skills acquisition leads to effective labour. Educated persons can easily innovate to enhance their everyday activities in order to be productive. Education and the skills acquisition can enhance efficiency of labour which invariably spurs into TFP growth. This is in agreement with Nelson and Phelps (1966) who argue that a more educated labour force would desire and adopt new technologies faster, consequently closing the technological gap. It indicates that skilled labour in Africa has a positive and significant effect on the ability to innovate and to adopt new technology and increase efficiency. This is consistent with the findings of Danquah and Ouattara, (2014) and Vandenbussche et al. (2006) who argued that the adoption of technology or imitation and innovations involves mostly human capital which is a skill-intensive activity.

Government expenditure, in particular, is statistically significant at 1% and has a positive effect on technical change but has a significantly negative effect on efficiency and TFP growth with a 1% and a 5% significance. An increase in government expenditure creates a multiplier effect following payments for services and goods received by government. Construction workers employed by government increase their spending in acquiring improving ways of doing things. This invariably opens up the economy which may cause the unemployed to gain jobs then they will have more income to spend leading to a further increase in aggregate demand.

Government, however, is generally believed to be inefficient. It is therefore not surprising with government being a major consumer of economic activities, that the more government spends the less efficient the economy becomes. This is in agreement with Hauner and Kyobe (2008) who show strong evidence that efficiency declines with the level of government spending.

Broad money is statistically significant to both technical change and efficiency at 1%, however, it has a negative effect on efficiency. This may be true in view of broad money being the totality of assets that households and businesses can use to make payments or to hold as short-term investments, such as currency, funds in bank accounts and anything of value resembling money and also being the most inclusive method of calculating money supply. Broad money supports innovativeness, but in most instances does not lead to an increase in efficiency. There is a well-established and long-run empirical relationship between broad money growth and inflation across a variety of countries and monetary regimes (see for example Benati, 2005; King 2002).

We also show that financial openness is positively and significantly related to both technical change and TFP growth at 1% and 5% respectively. As a proxy for financial openness, foreign direct investment (FDI) is believed to flow in from industrialised countries with improved production methodologies which directly impact the domestic economy. The inflows of FDI therefore open up the fiscal economy leading to access to improved technologies and innovative processes and hence a technical change and increasing TFP growth. Financial openness leads to a vibrancy of domestic markets and the expansion of productive infrastructure (Ballard, 2004)

GDP growth is statistically significant in all aspects of TFP- technical change, efficiency and TFP growth but affect technical change negatively. GDP growth and productivity move in

tandem as productivity is found to be the cornerstone of economic growth. However, an increase in GDP growth is a disincentive for innovation. The implication is that when there is economic growth, the satisfaction derived from better living standards discourages innovation. These notwithstanding, increases in productivity allow firms to produce greater output for the same level of input, earn higher revenues, and ultimate generate higher Gross Domestic Product. Productivity is a key driver of economic growth and changes in living standards. Labour productivity growth implies a higher level of output for unit of labour input (Kitov & Kitov 2008). This can be achieved if more capital is used in production or through improved overall efficiency with which labour and capital are used together, i.e., higher multifactor productivity growth (MFP). Productivity is also a key driver of international competitiveness, e.g. as measured by Unit Labour Costs (ULC).

Our Polity 2 score is significant to technical change and efficiency but has a lowering effect on technical change. From the descriptive statistics in Table 1, a polity 2 score of 0.352 suggest the level of anocracy in the governance system in the African states under the study. We find that the level of anocracy is detrimental to technical change but ensures the enhancement of efficiency. In countries where the nature of governance is neither fully democratic nor autocratic, the governance type is characterised as anocratic and efficiency in those countries are enhanced. Such countries however are not able embrace and sustain innovation. Most industrialised countries like Singapore have developed through sustenance of innovation under autocratic dictator rule of Lee Kuan Yew. Again the freedom under a democratic government leads to freedom of expression and the adoption of innovation.

Population growth is also key to technical change, efficiency and TFP growth. Whiles population growth boosts technical change and TFP growth, it has a lowering effect on efficiency. This implies that population growth affects the use of resource and cost of provision for such increase thus untargeted population growth affects efficiency. These

findings are in agreement with Barro and Lee, (2010) and they indicate that the large masses of the population in Africa usually contribute to TFP growth through the adoption of technology as suggested by Vandenbussche et al. (2006). We further show that the interaction between remittance inflow and FDI inflow (as a proxy for financial openness) significantly lowers the adoption of innovation in recipient countries. These two international flows make available large sums of capital inflows both to individuals and governments respectively, hence it weaken the impetus to innovation and creativity which hitherto have the tendency to push forward the frontiers of development.

4.6 Chapter Summary

Clearly, remittance inflows are very important and significant to innovation (technical change). There is the need to create the needed enabling and congenial economic environment, infrastructural development and avenues that encourage productive investments and encourage large volumes of remittance receipts through the official channels. Human capital directly affect technical change (innovating), enhance efficiency and lead to productivity growth. In order to truly make innovation a priority there must be a national agenda which is more importantly aimed at getting individual educated to be top-performers. It is crucial that government and policy makers target at bringing education to every citizen by ensuring inclusive and equitable quality education for all and also promote lifelong learning opportunities without discrimination. This invariably will drive level of innovativeness; enhancing efficiency and increase in productivity growth. It is prudent that policymakers target enhancing efficiency particularly ensuring government accountability, avoiding wastage in government spending and controlling corruption which inure to efficiency. It is clear that when government spending increases more money get into the hand of suppliers of goods and services to government, this opens up the economy for a technical change through innovation. There is also strong evidence that efficiency TFP growth declines

with the level of government spending. This is most often ignored by governments and policymakers by rather throwing money at every problem. GDP growth is also a function of productivity growth. An increase in GDP growth means an increase in efficiency and productivity growth. However growth in GDP does not mean an increase in innovation. Targeting policies which will endear growth in output levels will lead to increase in efficiency and acquisition of new technologies and improved process of production which is necessarily not innovative and growth in the general economy. We show that in Population growth is key to innovation and productivity growth. An increase in the population growth rate pushes an increase in the adoption of innovation and also productivity growth due to the large manpower from the population growth. Contrarily increasing population growth leads to a decrease in efficiency.

CHAPTER FIVE

TOTAL FACTOR PRODUCTIVITY GROWTH AND HUMAN DEVELOPMENT: THE ROLE OF REMITTANCES.

5.0 Introduction

In this Chapter, the study examines the effect of TFP on human development in the presence of international migrants' remittances in selected African countries. The study includes an annual panel data on twenty-one African countries from 2010 – 2014 and employs the System Generalised Methods of Moments (SGMM) estimator Windmeijer corrected standard errors and orthogonal deviations introduced by Bundell et al (2000) to examine the empirical relations. The chapter proceeds by first discussing the background to the study in section 5.1. In section 5.2 the chapter further discusses some selected stylized facts on the trends on human development as well as the level in human development. African countries as compared to other industrialised countries. It also shows the trends of remittance inflows and TFP. In Section 5.3 of this chapter includes the literature review of the study. The section also includes the conceptual framework depicting how TFP leads to human development in the presences of international migrants' remittances with some support from empirical literature. Section 5.4 includes methodology and data description. It also explains the estimation technique employed in this chapter. The section 5.5 follows this, by discussing mainly the empirical results. A presentation of findings can be found in section 5.6, whilst section 5.7 concludes with a chapter summary and policy implications.5

5.1 Background to the study

Africa continues to experience very low levels of human development across the entire continent in spite of the progress made in the area of training and education, health and growth in income levels. The unpredictable pace of development from country to country

and within the different sub regions makes it insufficient for the realisation of sustained developmental targets - agenda 2030. The drift of inclusive development is probably the solution to the achievement of its development target seeing it is still characterised by low levels of income, poverty, lack of education and poor health care in comparison to other parts of the world.

The yearly Human Development Reports (HDR), indicate a measure of Human Development as an index of achievement on good health for all, sound education and increasing incomes. It is established in the reports that a better measure of human development is the Inequality-adjusted Human Development Index (IHDI). The IHDI can be interpreted as the level of human development when inequality is accounted for, thus it measures the average realisations of a country's ability to provide good health care, provide sound education and its facilities and an increase in per capita income, and how it is distributed among its population by "discounting" each of measurement's average value is according to its level of inequality (HDR, 2014). Human development involves accumulation of wealth necessary for the expansion of human capabilities and functioning. It embodies the process of broadening people's choices so that they live their lives in a manner that is justifiable, participation, to be productive and sustainable (UNDP, 1999).

Africa's Economic Outlook Report of 2016 explains human development as embracing aspects of human life such as attaining self-worth, human rights, a sense of communal relationship, opportunities to express oneself in for creativity and productivity, social, economic freedom which enables one to have access to all ones needs and cultural freedom to enable one to belong. To achieve sustainable, long lasting human development therefore, governments as well as citizens must collaborate to build an enabling environment. African leaders must continue to shape ideas for the attainment of human development by applying pragmatic policies that respond to domestic circumstances and opportunities, involvement in

governmental and communal issues, ensuring environmental sustenance, protection and security and human rights enforcement as well as more equal outcomes and opportunities for all its citizens.

The Africa Economic Outlook Report (2016), also explains that the yearly average population growth rate of 2.6% for low human development countries is higher compared to the 1% for the high human development block and the 1.9% recorded for the medium development countries (UNDP, 2015a). This is very disturbing, considering the difficulties it poses for planning and policy decisions. Low human development, persistently and positively correlates with relatively high population growth rate in low human development countries. This has always a negative effect on social wellbeing. It tends to mitigate the positive impact of economic growth and social progress on human development. It is established by UN DESA (2015), that for every ten countries in the world, nine out of these that have low human development are characterised by the highest total fertility rates. Perhaps this serves as impetus for migration. Migration and remittance flow are concomitants. It is inevitable therefore that those countries with abysmal human development tend to have high inflows of remittances (Mohapatra, Joseph & Ratha (2009).

Whiles the compendiums of empirical literature on remittance studies have sought to look at human development, they have mostly done so through the lens of growth. Indeed, there can be growth without development hence drifting towards inclusive development is paramount. We contribute to literature by showing how remittance will lead to human development directly and indirectly through TFP growth using the IHDI as a measure for human development which is novel.

5.2 Stylized Facts

Globally, over two hundred and fifty million people live in foreign countries (out from their countries of birth) in search of greener pastures. In 2015, worldwide remittance inflows were estimated to exceed $601 billion (Migration and Remittance Report, 2015). Developing countries alone receive about $441billion which is more than three times the total official aid. Thirty million strong Africans in the diaspora are presumed to be fuelling the continents' budget to the tune of 5% of its total GDP through the remittances they send back home. Many migrants send money back home for savings and investments in small businesses, capital investment, real estate or other assets in their own country. This is partly because they know understand the business terrain and the local markets better than in the foreign countries hosting them and most probably expect to return home in the future (Stahl & Arnold 1986). Remittance certainly is a lifeline in many African countries and over the past decades, remittances remain an issue for policymakers and researchers. This is a matter that needs consideration in view of the low level of human developments in Africa, making remittances invaluable for obviating low income levels. Remittances are deemed to affect human development directly as well as indirectly. We believe that remittance has the potential to moderate the effect of Total Factor Productivity growth on human development.

In Table 5.1 we show the classifications of the level of human development as put forth in the UNDP human development reports of 2015. Countries that fall below an index of 0.555 have low levels of development and need to proactively target and work hard at alleviating poverty and create an enabling environment that seeks to enhance human development variables.

Table 5.1: UNDP Human Development Classifications

Classification of Human Development Index	Levels
Very high human development	0.800 or greater
High human development	0.700 – 0.799
Medium human development	0.550 – 0.699
Low human development	less than 0.550

Source: Author's Compilation from the UNDP HDR, 2015

Table 5.2 displays African countries by the level of regional variation in human development, North Africa alone has the highest number of three countries (Algeria, Libya and Tunisia) with high human development. Egypt and Morocco have medium human development and only Mauritania has low human development in the Northern region of Africa. Southern Africa has only one country (Mauritius) with high human development, the rest of the countries belongs to either a low or medium human development category countries. However, in East and West Africa, the majority of countries are in the low human development category and only one country (Seychelles) in East has high human development. Clearly, almost all of the countries in Eastern, Western and Central Africa have low human development except for Cabo Verde and Ghana in West Africa and Congo, Equatorial Guinea and Gabon in Central Africa which recorded medium human development.

Table 5. 2: African Countries by Level of Human Development

Region	High human development (0.799 - 0.700)	Medium human development (0.699 – 0.550)	Low human development (0.550 and below)
North	Algeria , Libya, Tunisia	Egypt, Morocco	Mauritania
Southern	Mauritius	Botswana, Namibia, Sao Tome and Principe, South Africa, Zambia	Angola, Lesotho, Malawi, Mozambique, Swaziland, Zimbabwe
East	Seychelles		Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, Uganda.
West		Cabo Verde, Ghana	Benin, Burkina Faso, Cote d'Ivoire, Gambia, Guinea, Guinea Bissau, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Togo
Central		Congo, Equatorial Guinea, Gabon	Cameroon, Congo DR., Chad, Central African Republic, Madagascar

Source: Authors Compilation from UNDP HDR, 2015

Raising living standards across Africa is crucial and paramount to accelerating human development. It is of great concern, that issues on good health and healthcare facilities as well as equipment, sound education and well equipped educational centres, upholding gender equality and deliberate empowerment of women, the reduction of infant and child death, universal access to safe and portable drinking water and provision for adequate sanitation, and the enhancement of the lives of poor rural and urban slum dwellers in Africa dominate global policy headlines in the drawing of development policies (Sørensen, 2004). Africa is still faced with a significant shortfall with respect to people's experiences, capabilities and choices which has tremendous implications for inclusive growth and development both in the short and long-term. Africa's concentration must therefore be directed at pursuing paths that

leads to accelerating and sustaining development, especially for low human development countries, in order to achieve both global and continental poverty targets in all its countries.

In Table 5.3 the study shows the "top ten countries and least ten countries based on human development levels". The Human Development Report (2015) clearly explains the hampering effect of inequality in the distribution of social amenities as well as on opportunities outcomes to be associated to Africa's human development progress within countries. Interventions targeted at stimulating human development are debilitated. Adjusting the disparity in the circulation of good health and healthcare, sound and effective education for all and increasing income across the populace in every nation and every region in the world registers a fall in the levels of human development.

Table 5.3: Top ten countries and least ten countries human development levels

Top Ten Countries	HDI	IHDI	Least Ten Countries	HDI	IHD1
Norway	0.944	0.891	Mozambique	0.393	0.277
Australia	0.933	0.860	Guinea	0.392	0.243
Switzerland	0.917	0.846	Burundi	0.389	0.257
Netherlands	0.915	0.854	Burkina Faso	0.388	0.252
United States	0.914	0.755	Eritrea	0.381	0.237
Germany	0.911	0.846	Sierra Leone	0.374	0.208
New Zealand	0.910	0.833	Chad	0.372	0.232
Canada	0.902	0.832	Central African Republic	0.341	0.203
Singapore	0.901	0.849	Congo DR	0.338	0.211
Denmark	0.900	0.843	Niger	0.337	0.228

Source: Author's Compilation from UNDP HDR, 2015

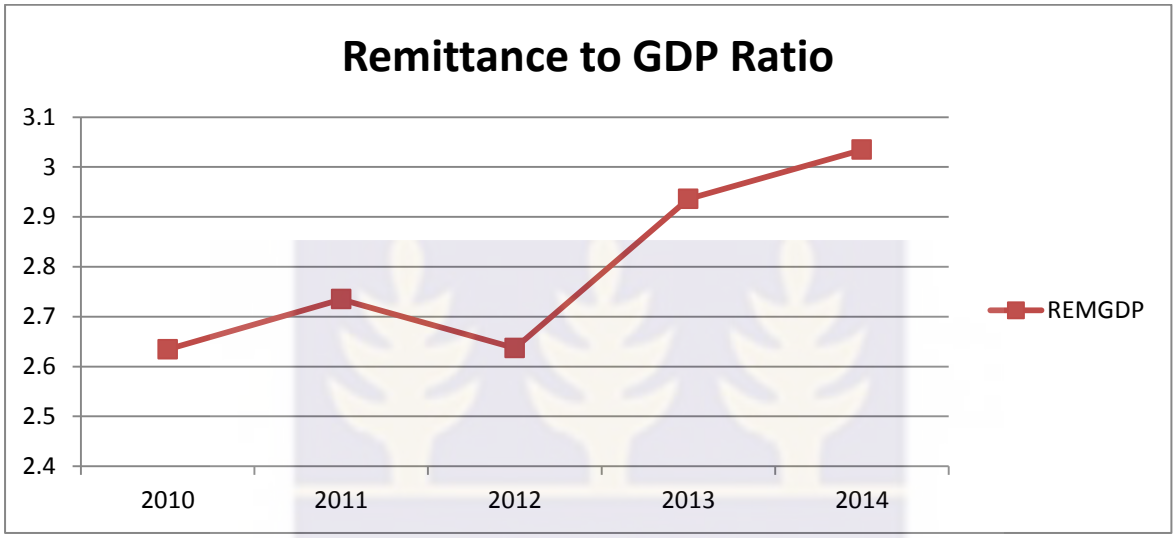
The difference between the human development levels and the adjusted human development levels is largely the loss in human development levels due to the disparity explained as inequality. This even worsens in the case of Africa as its inequality - adjusted human development gets even lower. No African country falls among the top ten countries of very high human development levels. Rather all ten least human development levels are all recorded among African countries.

It is possible for Africa to take advantage of its predicament by pulling in the direction of the findings of Abramovitz, (1986) which assert that it is the underdeveloped countries that have the capability and prospects to expedite the "catch up" process and to make a greater leap in its developmental process than developed countries. The bane of Africa, as clearly viewed in the data of World Development Indicator (2015) and also in Fosu (2012), is that its growth performance generally declines resulting in several countries experiencing substantial let-downs in TFP. The main source of the decline in TFP growth is directly linked to the decline in development. It is believed that the magnitudes of remittances that flow into poor vulnerable countries is doubled in the face of poverty and under development and therefore are invaluable sources of capital that could be used to enhance its development (Ratha et al., 2011).

In figure 5.1, the study shows the trend of Remittance to GDP ratio that flowed into 23 African countries across 1990 to 2014. Clearly, there is a persistent upsurge of average remittance inflows to GDP ratio in Africa as purported by World Bank Report (2016). African migrants' remittance to their country of origin surged from 3.4% of the previous year's amount to $35.2 billion in 2015. There was a dip in the inflow of remittances in the year 2012, probably due to world political and economic issues. This might include the United States of America, a major source of remittance inflows into Africa going to the polls in 2012, the ignited conflict between Israel and the Gaza, Spain's one hundred billion dollar

bailout, and Iran's international embargo which could have raised the scepticism and therefore the fall in remittance inflows in 2012. Beyond 2012, the remittance flow has been consistent and rising.

Figure 5.1: Trend of Remittance to GDP Ratio



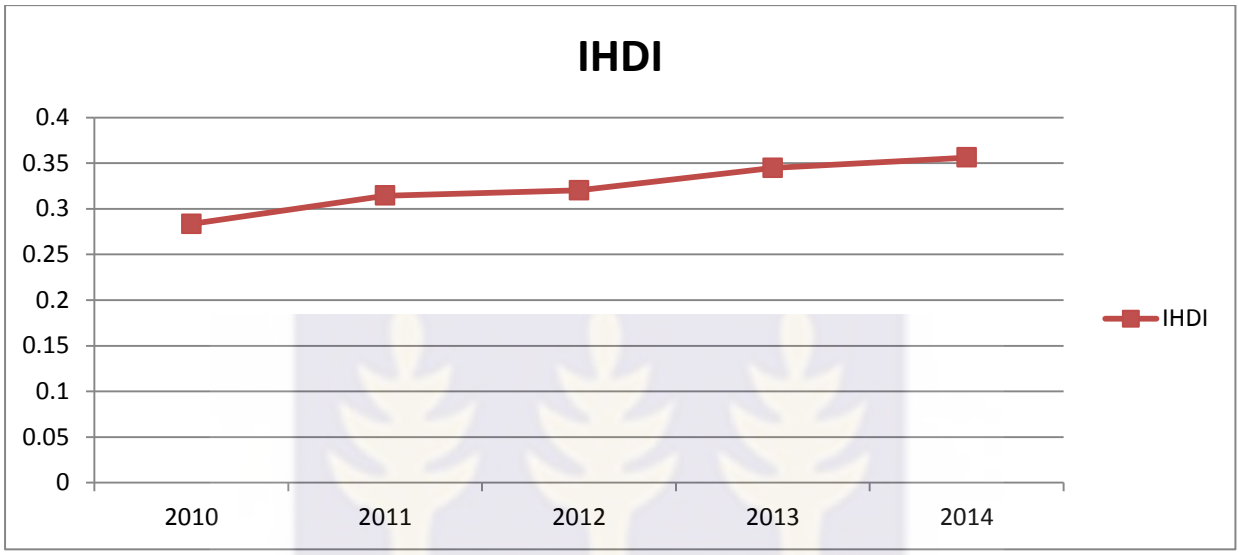
Source: Author's compilation from WDI data

(Burkina Faso, Cameroon, Côte dIvoire, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mali, Morocco, Mozambique, Niger, Nigeria, Senegal, South Africa, Tanzania, Tunisia, Uganda, Zambia, Zimbabwe).

It is anticipated that remittances catalyse the effect of TFP growth in human development. Figure 5.2 shows graphically the actual trends in human development levels using the inequality-adjusted human development index across the period of this study for sampled African countries. It is obvious that there is an averagely steady growth in IHDI. While Africa progresses in increasing human development levels, its progress is rather slow hence registering minimal effects in its human development. Human Development across the sampled African countries under the period, suggests that they fall in the category of low IHDI as classified by the UNDP - HDR 2013. The average level of human development and

its distribution along the dimensions of life expectancy, educational attainment and command over the resources needed for a decent living is impeded.

Figure 5.2: Trend in Inequality - Adjusted Human Development Index

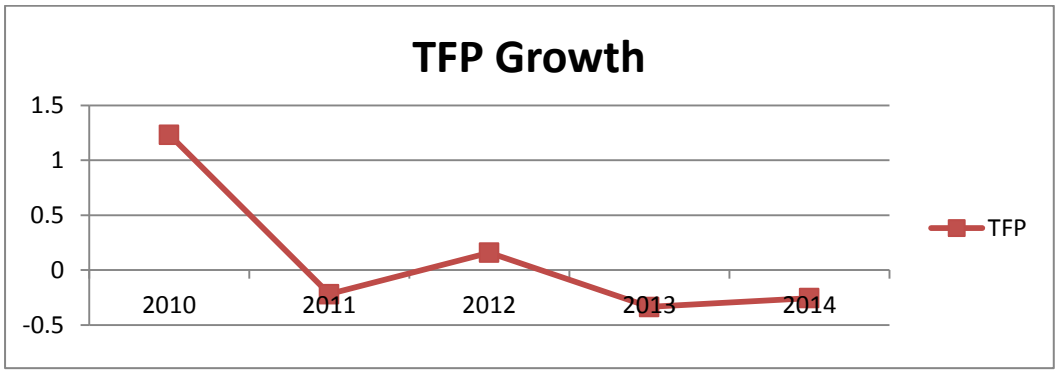


Source: Author's compilation from UNDP- Human Development Reports

(Burkina Faso, Cameroon, Côte dIvoire, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mali, Morocco, Mozambique, Niger, Nigeria, Senegal, South Africa, Tanzania, Tunisia, Uganda, Zambia, Zimbabwe).

Figure 5.3 shows the trend in Total Factor Productivity growth (TFP growth) within the sampled African countries over the period 1990 to 2014 (Conference Board Database, 2015). TFP growth in Africa is significantly lower compared to the higher income countries in the data. TFP growth averagely shows very low growth that fluctuates between -0.2 and 1.2. TFP growth is the proportion out of output which is not as a result of the quantity of inputs employed in a production process. It is an average measure of the efficiency. Technology change (innovation) and efficiency are observed as two major components of TFP, the former having "special" intrinsic features such as positive externalities and non-rivalry which heighten its role as the underpinning propeller of economic growth.

Figure 5.3: Trend in Total Factor Productivity Growth



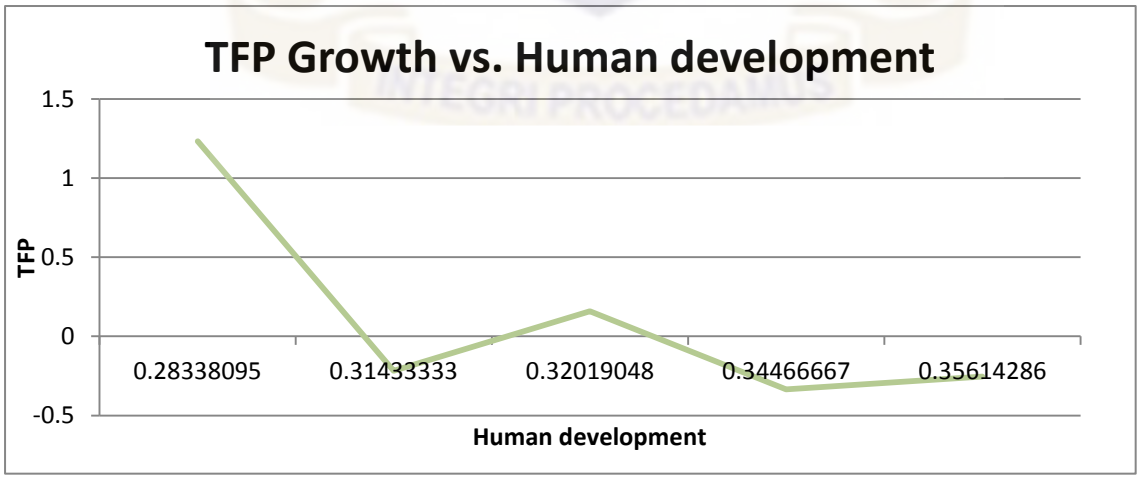
Source: Author's compilation from Conference Board Database 2015

(Burkina Faso, Cameroon, Côte dIvoire, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mali, Morocco, Mozambique, Niger, Nigeria, Senegal, South Africa, Tanzania, Tunisia, Uganda, Zambia, Zimbabwe).

TFP is mostly observing as the real propeller of growth within an economy. Studies disclose that indeed, labour and investment are significant contributors to growth, however, TFP possibly will explains growth within economies for up to 60% of (Easterly & Levine, 2001).

Figure 5.4 shows the relationship between total factor productivity growth and human development index. At lower levels of total factor productivity growth, human development index increases after adjusting for the inequalities within the sampled African countries.

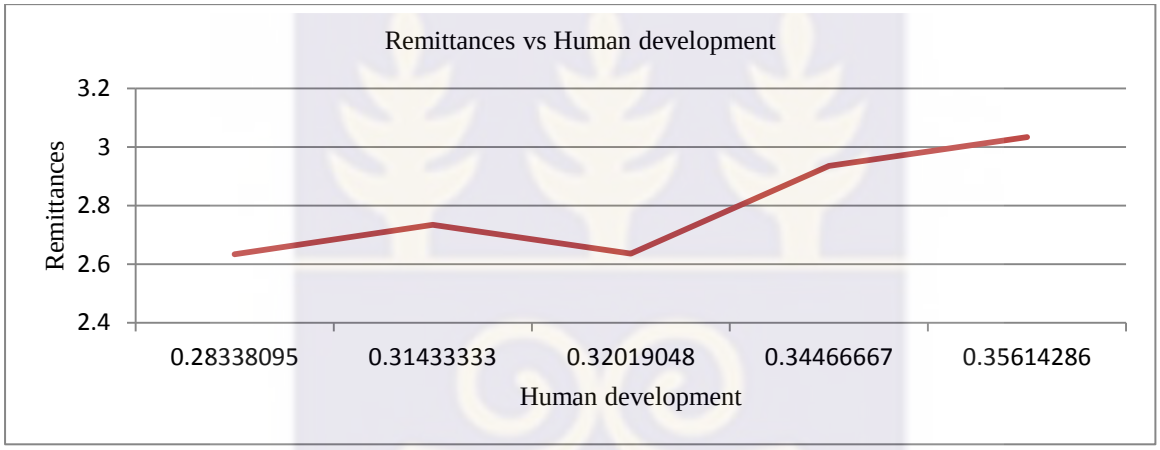
Figure 5.4 shows the Relationship between TFP Growth and Human Development



Source: Author's compilation from 'Conference Board' Database 2015 and HDR, 2015

Figure 5.5 shows clearly that indeed, there is a positive and a direct connection between remittance to GDP ratio and human development. Remittance and human development moves in tandem in a steady increase. Remittance enhance well-being, it increases household income level and encourages the consumption of higher education and quality health care. Among the sampled African countries, as international migrant personal remittances inflow to GDP ratio increases, the human development index goes up.

Figure 5.5: Relationship between Remittance inflows and human development.



Source: Author's compilation of remittance data from WDI 2015 Database and the IHDI from UNDP- Human Development Reports 2015

Böhning (1975) and Rempel and Lodbell (1978) posit that remittances are principally employed in the consumption of goods and services. It also allows recipients to expend on their housing projects by providing an additional source of income for families in the migrant's native home that is free of the domestic production process which has a positive effect on human development. While remittances remain invaluable, we empirically test to ascertain the potential of remittances to enhance human development through TFP growth.

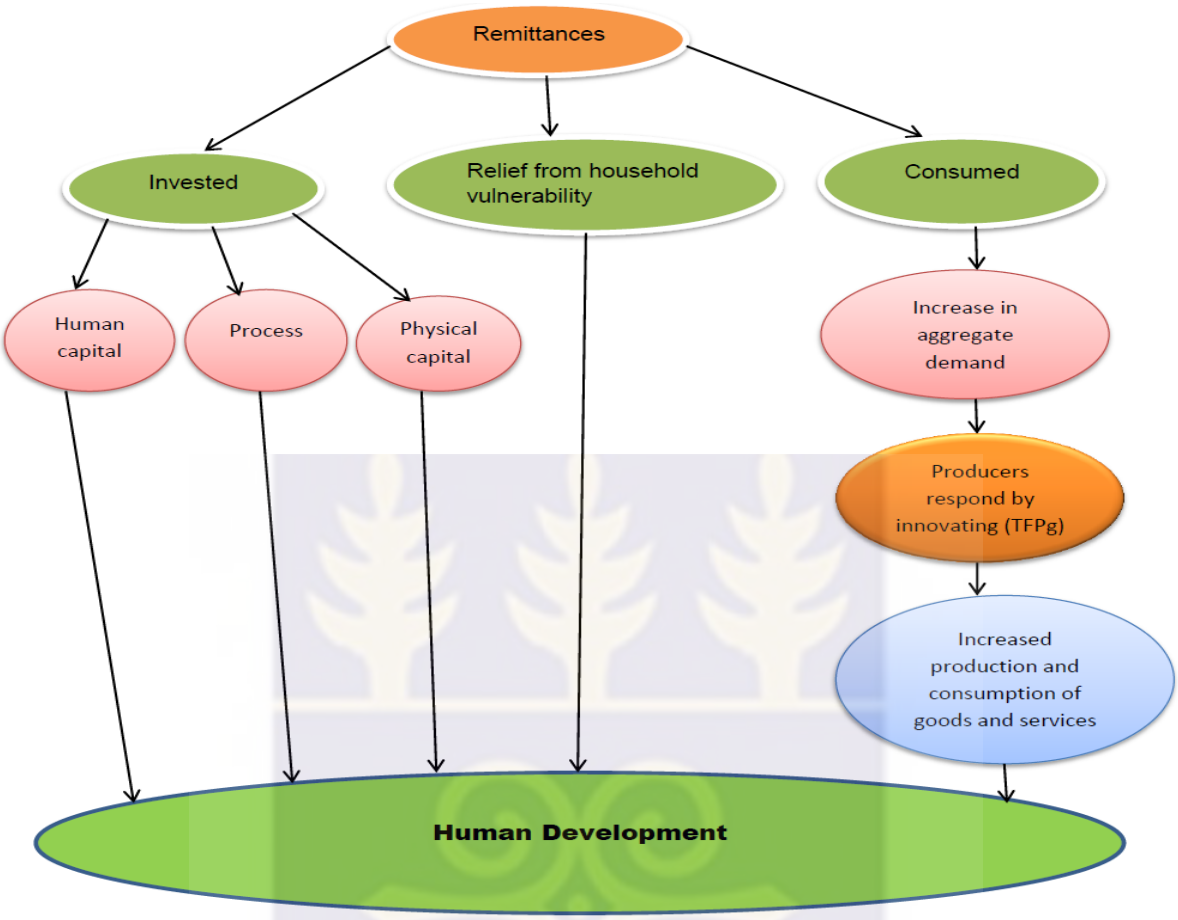
5.3 Literature Review

5.3.1 Conceptual framework on how TFP growth affects human development through the remittance inflows

Intuitively, development and its sustainability are achieved through efficiency, innovativeness and access to new and appropriate technologies – all mechanisms of TFP. These potentially promote steady improvements in living conditions, which can be lifesaving for the most vulnerable populations, driving productivity gains, increasing incomes and development.

Underpinning our conceptual framework is the idea put forth in the Global Development Finance Annual Report (2003) and the empirical work of Barajas et al (2009). Remittances are an external source of funds for development. More importantly, it is worth noting that, whether they are consumed or invested; their multiplier effects will invariably affect human development (Global Development Finance Annual Report, 2003). Barajas et al (2009), show that remittances have a direct linear relationship with economic growth through their impact on TFP. They explain that remittances impact TFP through production externalities.

Figure 5.5: Conceptual Framework



Source: Author's Own Conceptualisation

Remittance inflows can be invested or consumed or can be applied directly in a way to relieve households' vulnerabilities in the occurrence of disasters and unexpected occurrences. It flows in large volumes to mitigate the debilitating effects of natural disasters and enhance the social well-being of the affected. For instance, Ratha et al. (2011) show that remittances enhance social well-being and boast economic growth in periods of adverse economic shock. Ratha (2007) finds that during the financial crisis of Mexico, Indonesia and Thailand, remittance inflows doubled and cushioned individuals and the economy as a whole.

Remittances could be invested in human capital through its use in financing education, training and the acquisition of employable skills. (see King et al., 2011; Lutz, 2010; Bredl,

2010; Calero et al, 2009; Amuedo-Dorantes, Georges & Pozo, 2008; Kunz, 2008; Acosta et al., 2007; Acosta, 2006; Lopez-Cordova, 2005; Goldring, 2004; Edwards & Ureta, 2003) who show that remittance impact child education. Hanson & Woodruff (2003) find that remittances and human capital development are linked positively in Latin America (see also Calero et al., 2008; Adams & Cuecuecha, 2010). Indeed Marginson (1989), rationalises that individuals will invest their remittance into education if they perceive that the return on investment is maximised through their acquisition of training and development of skills inuring to their personal benefit and society at large leading to the decline of their poverty levels and marginalisation index. In fact, Ranis, Stewart, & Ramirez (2000) find a positive and significant relationship between human capital and economic development. Remittances could also be invested in the acquisition of new technologies, improved ways of doing things and innovative processes which bring development. Remittances could also be invested in physical assets which go to increase cash inflows and disposal income and invariably enhancing human development.

Remittances are widely claimed to be primarily consumed rather than invested (see Chami, Fullenkamp & Jahjah, 2003; Chami, Hakura & Montiel, 2009; Ameuedo-Dorantes & Pozo, 2006; Glytsos, 1993). Quartey & Blankson (2004) also find that remittances are effective in smoothing the consumption of households of most disadvantageous groups of people. Remittances afford recipients the opportunity to increase their demand of goods and services or the consumption of leisure. Indeed Yang (2006) finds that remittances smoothens consumption in Indonesia, Mexico and the Philippines following their financial crises and in Central America following natural disasters. An increase, therefore, in consumption will push up aggregate demand. This will invariably push and force producers and suppliers to react to the increased demand through the innovative purchase of new technologies and the acquisition of processes for improvement in ways of producing. Producers are likely, as a

result to enjoy economies of scale and scope. As production increases, prices will fall leading to an increase in consumption and invariably leading to human development. Ajayi et al. (2009), explain that family income is augmented through remittances which increases their consumption and enables the affording of better healthcare to which Cole and Neumayer (2006) add that better health care increases productivity and enhance human development.

5.3.2 Empirical Literature

The compendium of empirical literature on remittance studies have sought to look at human development: however it did so mostly through the lenses of growth and on dimension of development - poverty, income inequality and human capital development. The literature review also suggests that there is a discrepancy in the findings on the remittance – development literature.

All through the empirical literature, some studies establish that there is a direct and a linear relationship between remittances and economic development, (see Catrinescu, León-Ledesma, Piracha, & Quillin, 2006; Faini, 2007; World Bank, 2006; Ramirez & Sharma, 2008; Ziesemer, 2006) while others find a negative or no relationship (see Barajas et al, 2009; Chami et al 2005; Gupta, 2005; International Monetary Fund (IMF), 2005). Gupta et al. (2007) however find that the solutions of the challenges that stare low-income countries in the face cannot be ameliorated or mitigated by substituting remittances for a sustained and domestically contrived development, adding that remittances are not panaceas.

In the remittance and poverty literature, Rajan & Subramanian (2005) show that the surge in remittance inflows increases recipient families' income and raises their standard of living by directly alleviating their poverty levels. Adams & Page (2005), in measuring poverty and income inequality, also find that even in developing countries in general, workers' remittances increases recipient family's income and raises their living standards by alleviating

poverty levels in depth and severity directly in developing countries. In the same respect, Jongwanich (2007) confirms that in the Asia-Pacific developing countries, remittances have a significant impact on poverty reduction by increasing incomes. Gupta, Pattillo & Wagh (2009) add that indeed remittances have a linear poverty mitigation effect and reduce income inequality in developing countries (see Siddiqui & Kernal, 2006). Acosta et al (2006) on another hand, find that remittances do not significantly alleviate inequality in Latin American countries although they do reduce poverty measures. Ebeke & LeGoff (2009) however find that with developing countries, the higher the mean incomes of recipients of remittances within a country the more the remittances tend to reduce their income inequality.

Several other studies show that remittances impact the consumption patterns of remittance recipients: Stahl & Arnold (1986) maintain that when remittances are consumed they tend to have a progressive benefit on growth because of their possible rippling impact. Additionally, remittances react to investment prospects in the household country as much as it for benevolent purpose or with insurance motives. In agreement, Glytos (2002) shows that indeed remittances do really have a multiplier effect on consumption and income which affects development outcomes in Morocco. De Leon-Manlagnit (2006) also shows that even with private household consumption, remittances are able to impact developing countries significantly and positively with or without any interactive effects. Nguyen (2008) in agreement, shows that even in Vietnam, remittances aggressively increase household consumption by increasing income and reducing poverty, although it increases income inequality marginally. On the contrary, Böhning (1975); Rempel & Lodbell (1978) argue that insofar as remittances are primarily employed for consumption and for general household expenditures, remittances never impact positively on economic development. Giuliano & Ruiz-Arranz, (2006) admit that remittances are mostly thought to be mostly applied for consumption purposes hence they are perceived to have negligible effect on productive

investment that would bring about the needed economic growth and development. Singh & Hari (2011) confirm that in India remittances appear to be used to finance investment more than they are used for daily consumption of goods and services and as a result do not just impact the household sector but the general economy, increasing foreign exchange reserves and reducing poverty.

In the remittance and education literature: Adams & Cuecuecha (2010) argue that in as much as remittances are consumed, recipients of remittance in Guatemala spend more of the remittance funds on education and housing rather than on general consumption of goods and services. All the findings of the studies of Woodruff & Zenteno (2007), Yang (2008), Bansak & Chezum (2009), Alcaraz et al. (2012) show that remittances are used to finance mainly education and investments into entrepreneurship activities. Indeed Edwards and Ureta (2003) find that in El Salvador, households channel all their remittance funds into the financing of education for themselves and their children. In agreement, Elbadawi & Roushdy (2009) observe that even in Egypt, children of remittance receiving families are more likely to enrol in the university than non-recipient households. Adams et al., (2008) add that in Ghana, recipients of remittances educate their children to higher levels than non- recipient households. Lopez-Cordova (2005) shows that undeniably, increasing the proportion of households that access remittances in Mexico are positively associated with higher continuous schooling, better healthcare access and poverty reduction. To buttress this, Bredl, (2011) reaffirms that remittance receiving households in Haiti and Mexico invest more in education. To this, Nelson and Phelps (1966) even add that education leads in the direction of the promotion, embracing and the know-how into the use of new technologies. Furthermore, they modelled to show that the growth of technology is always affected by an interaction of human capital and education in a catching up setting. Stark et al. (1997), Lowell & Findlay (2002) and De Haas (2005) also find that, rather, remittance inflows have counter beneficial

effects in the form of new knowledge, innovations, investments, trade relations, attitudes and information in the medium to long term.

A fraction of the literature looks at remittance and development while some looks at remittances and growth; however Bjuggren et al. (2010) asserts that it is remittances channelled into financing education and investments - such as small-scale businesses that enhances growth. Indeed Catrinescu et al. (2006) admits that it is the conditions with a country that enhances the growth effect of remittance. Rapoport & Docquier (2005), in agreement, add that the uses to which remittances are put enhance their distributive effects which normally are associated with its growth impact.

Whiles Chami et al. (2003) find that indeed, remittances have a lowering impact on economic development, Rapoport & Docquier, (2005) argue that there it was the possibility of remittances easing liquidity constraints for investment in human capital, which was ignored by Chami et al. (2003), that led to their findings. They stress that human capital is an important factor affecting growth but this was not included in the analysis of Chami et al. (2003). Fayissah and Nsiah, (2008) confirm that in fact remittances do not only boost economic growth but do so through investment in human capital and investment in technological change that invariably lead to development in Sub- Saharan African countries. Adenutsi (2010) show that indeed remittances are of serious importance to Sub-Saharan African countries and that it robustly affect human development and have a significantly positive impact on socioeconomic development. On the contrary, Senbetta, (2013) use growth accounting to show that, remittances are insignificant to growth even through Total Factor Productivity.

Beyond these, other empirical studies on remittance and TFP show that remittance inflows into an economy impacts the growth of TFP through their potential effect on their efficiency

in domestic investments including the size of productivity of the domestic sectors. It is believed that these mainly generate such production externalities which are dynamic (Barajas et al. 2009). Remittances have the potential of expanding the volume of financial resources flowing through the banking system. It affects the quality financial intermediation on the domestic front and leads to the efficiency of investment by altering the quality of in the efficient allocation of capital into productive investment sectors.

To the contrary, Acosta, Lartey & Mandelman (2007; 2008), and Montiel (2006) indeed show that remittances alter the size of the dynamic production externalities and affect TFP growth. They argue that the real exchange rate appreciation moves in tandem with remittances inflows, suggesting the potential of a Dutch Disease effect within recipient countries. Abdih et al. (2008) also identify that remittance inflows impact negatively on TFP growth by reducing the incentive for citizens to demand efficiency of domestic governance and institutional quality. Clearly the potential effect of remittances on TFP growth is uncertain as well as its magnitude of impact.

With respect to empirical literature in how TFP growth affects development, Devarajan et al. (2003), admits that for instance, the main limitation to African growth currently is its low productivity instead the level of investment that has been. Fayissa and Nsiah (2010) find that TFP has an insignificant but positive effect on the economic growth of sample African countries. Fosu (2012), however, observes that TFP growth appears to be the vital source for the most low growth of African economies since the 1960s. Conversely, the recent growth resurgence as of the mid-1990s could reasonably be attributed to major improvements in TFP. Schultz (1980) asserts that improvement in population quality and the acquisition of useful knowledge imply favourable economic development prospects. Romer (1990) argues that the growth rate of an economy, claiming it is attributable to TFP growth and human capital employed in the research sector. Benhabib and Spiegel (1994) affirms that TFP

growth is in fact a function of human capital in the catching-up on growth. Romer (1990b, p. 270) finds that truly it is the human capital level that affects the growth of technology directly and assists in the catching-up development process. They argue that indeed growth rates may differ among countries because of differences in human capital stock levels, thus, human capital enhances economic growth by affecting the growth of TFP both directly and through its interactions. Temple (1999, p.125) alludes that it is cross country growth accounting that allows for the modelling of the growth rate of TFP as a function of observable variables.

In the extant literature, growth and development have been used interchangeably and even in some cases both mean same. The remittance effect on economic growth and development is not straight forward. However, growth is not necessarily development. It is very true that there can be growth without development, hence drifting towards inclusive development is paramount. Development importantly looks at a wider range of statistics than just volume of real Gross Domestic Product and GDP per capita. Beyond GDP per capita, it is concerned with how people are actually affected. It measures actual living standards through lens focussing on life-expectancy, health care, and literacy among others.

We contribute to literature by showing how remittance will lead to human development directly and indirectly through TFP growth and proxy IHDI as a measure for human development which is novel. The presumption here is that individual development collectively will impact human capital and economic development.

5.4 Methodology and Data Description

5.4.1 Conceptualising Empirical Model Framework

The effect of remittance on human development can be illustrated using the Cobb–Douglas production function,

$$Y = A\,L^{\beta}K^{\alpha} \qquad (1)$$

$$0 < \alpha < 1$$
$$0 < \beta < 1$$
$$0 < \alpha + \beta < 1$$

It is a non-linear production function that exhibits a diminishing marginal rate of substitution between capital and labour. Where Y = human development (the yearly human development index), K = capital stock (fixed capital formation and remittance are regarded as proxies of capital) and α and β are the output elasticities of capital and labour respectively, determined by available technology; α and β are assumed to be individually between 0 and 1,while the sum is equal to one. It is conjectured that remittances enter the production function as capital. Following Romer (2006), it is assumed that the countries under the sample are open economies and modern technologies will readily improve the knowledge stock of the domestic labour as effective labour *(AL)* spurring human development. Therefore, using remittance as a proxy for capital and total factor productivity as a proxy for effective labour, equation (1) is log-linearized and stated in its estimable form as follows:

$$Y_{it} = \beta_1 TFP_{it} + \beta_3 Rem_{it} + \varepsilon_{it} \qquad (2)$$

where Y_{it} represents the log of Inequality Adjusted Human Development Index for country i at time t, TFP_{it} is total factor productivity for country i at time t, Rem_{it} is remittances for country i at time t and ε_{it} is the error term.

Two important modifications are done to equation (2). The first involves the inclusion of some control variables to account for other factors that could affect human development. For instance, household consumption expenditure, investment, improved water source, trade and rural population are included as control variables. The lag of human development is also included as a control variable based on the argument that human development is cumulative and that previous levels of human development are critical in predicting the current levels of human development. This also makes the model dynamic to account for possible endogeneity and the use of GMM methodologies. All these variables have been found in the literature to significant account for human development (see for instance, Senbetta, 2013; Agbloyor et al., 2016). The second involves the inclusion of an interaction variable between TFP and Remittances. This is included to account for the fact that TFP and Remittances can simultaneously be associated with human development. It is presumed that remittance will expand disposable income and aid the acquisitions of more technology which gives impetus to the provision of such amenities that leads to human development. Remittance will also receipt the cost of training and the acquisition of skill. The model that is estimated is equation (3):

$$Y_{it} = \beta_1 Y_{it-1} + \beta_2 TFP_{it} + \beta_3 Rem_{it} + \beta_4 TFP * Rem_{it} + \sum_{j=5}^{N} \beta j\, X_{it} + \varepsilon_{it} \quad (3)$$

where Y_{it} represents Inequality Adjusted Human Development Index for country *i*, subscript *t* represents time, $Y_{(it-1)}$ represents the first lag of Y_{it} , and β_1 represents the coefficient of the lag of Inequality Adjusted Human Development Index. We obtained the Inequality Adjusted Human Development Index from the Human Development Reports. β_2 represents the coefficients of the Total Factor Productivity growth (TFP). TFP is measured as TFP growth. The data on TFP growth were obtained from the Conference Board Database, 2015. β_3 represents the coefficient of Remittance. Remittance is measured as the ratio of total International migrant personal remittances received to GDP ratio. The data on Remittances

were obtained from the WDI, (2015).

β_4 represents the interactive effect between TFP growth and remittances. TFP growth and Remittances are built-in in the model to capture their effects on human development independently. We include the product of TFP growth and remittances to capture the interactive effect between TFP growth and remittances. The intuition behind the interaction is to ascertain the effect of TFP growth on human development in remittance-recipient countries. It is believed that remittance inflows expand the capital base of the banking sector acting as a receptacle and channel through which remittances flow in. These massive inflows of remittances aid in the adoption of new technologies and enhances efficiency and innovative practices signifying TFP growth. This has the potential of translating into human development as in enlarging incomes for the consumption of healthy living, acquisition of skills through training, both formal and informal.

X_{it} is a set of control variables. These control variables have been severally used in the development literature and include, household final consumption expenditure, investments proxies by gross fixed capital formation, improved water resource, ratio of rural population to total population, trade to GDP ratio, (see Senbetta, 2013; Fayissah & Nsiah, 2014).

ε_{it} is an error term. It is assumed to be well-behaved with an expected value of zero and a mea of one. It breaks down into μi + vit (i.e. explained and unexplained components respectively).

We proxy development by the Inequality adjusted Human Development Index (IHDI). The IHDI measures and takes into account not only the average achievements in a country across three basic dimensions of human development: provision of good health and good healthcare, accessing knowledge via education, and decent income affecting standard of living but also

how those achievements are distributed among its population by "discounting" each dimension's average value according to its level of inequality.

We expect that households' final consumption expenditure will positively affect human development (Adams & Cuecuecha, 2010); we expect that, investments and improved water resource will have positive effect on human development. Investment is proxies as gross fixed capital formation to GDP. Poveda (2013) studying Colombia finds that investments have positive and significant coefficients indicating that these variables produce incentives for economic development. Roy, Heuty and Letouze (2009) find that development transformation requires a sustained and increased period of investment spending to support economic growth and deliver basic services necessary for achieving human development. Gleick (1998), argues that access to an improved water source is a basic requirement and it is a fundamental for human rights and for development, implicitly and explicitly supported by International law, declarations and state practice.

We also expect to have a negative effect of rural population to total population on human development. According to the MPI 2014, 85% of multi dimensionally poor people live in rural areas. The MPI suggests that the rural share of poverty is higher than income poverty estimates of 70 to 75%. The lack of human development among the rural population is perpetuated through low levels of education and few skills. The resultant effect is much of the rural population working as subsistence farmers or in informal employments exacerbating the state of rural poverty and development.

We anticipate a direct linear relationship between trade and economic development. Trade is measured as total trade to GDP. When trade is liberalised it usually encourages the opening up of the economy and promote growth in the country. Yanikkaya (2003) also finds, that trade openness encourages economic growth, although trade obstructions also appear to have

a positive and significant relation with growth. Falvey, Foster, & Greenaway (2012) find that trade liberality promotions economic growth in both in disastrous conditions and non-crisis periods. ε_{it} indicates the error term in the regression. The error term ε_{it} represents a well behaved error term with an expected value of zero. It breaks down into $\mu_i + \nu_{it}$. μ_i represents the time invariant country-specific effect, and ν_{it} represents the remainder of the disturbance in the estimated regressions. The list of countries employed in the empirical analysis is provided in Appendix 1

5.4.2 Estimation Technique

The correction for endogeneity in remittances studies is the ultimate challenge, mostly in the effects of remittances on growth and development studies. There are three key tools employed in the mitigation of endogeneity problems: the choice of a set of instrumental variables that best fit the choice of a set of conditioning variables, and, to a certain extent of even choosing the estimation technique. Following the discussion, we employ the system generalized method of moments (SGMM) estimator and study the effect of remittance on human development with respect to the role of TFP.

Soto (2009) through Monte Carlo simulations analysed the properties of various estimators - OLS, fixed-effect and the standard first difference GMM estimator, level GMM and system GMM (Arellano & Bond, 1991; Arellano & Bover, 1995; Arellano & Bond, 1998; Blundell & Bond, 1998) and shows that provided that some persistency is present in the series, the System Generalised Method of Moment (SGMM) estimator has a lower bias and higher efficiency than all the other estimators analysed, including the standard first-differences GMM estimator which also eliminates the country-specific effect. The SGMM estimator, however, overcomes these difficulties as it combines the regression in differences with the regression in levels.

One famous caution of difference between GMM and the level GMM estimators refers to their reported two-step standard errors, which systematically underestimate the real standard deviation of the estimates (Blundell et al, 2000) hence the use of the SGMM estimator with Windmeijer's (2005) corrected standard errors because this is asymptotically more efficient than the one-step estimator. More importantly, our balanced panel has a small sample size due to insufficient data on the IHDI which covers a period of five years - 2010-2014 hence we employ the use of orthogonal deviations to maximize the sample size. The SGMM estimator is suitable and particularly relevant for this study because it is appropriate for regressions with short time periods and many entities (Roodman, 2006).

In this study, we have IHDI data for only a five-year period which is short and matched to twenty-three African countries. Again, the SGMM approach allows us to treat development as a dynamic process, thus accounting explicitly for the possibility that previous development may influence future development. The SGMM approach is useful in this study as it allows for the control for endogeneity among explanatory variables. The Sargan/ Hansen test of over identification restrictions and the Arellano and Bond test for second-order serial correlation in the error term allows for the checking of consistency of our estimates. The Sargan/Hansen test measures the validity of the instruments by analysing sample similarities of the moment conditions used in the estimation. By construction, the error term may be serially correlated in the first order. However, second-order serial correlation is a sign of misspecification.

5.5 Discussion of Empirical Results

We present and discuss the results obtained in the empirical analysis in this section. First we explore the data we have through descriptive statistics in Table 5.4. We present the correlation matrix of our variables in Table 5.5 to guide the empirical specification of our study. Lastly, in table 5.6 we present the actual empirical analysis that tests if total factor productivity influences international remittances and have an effect on human development

in Africa. Furthermore, we show that remittances boost households' final consumption expenditure to affect human development.

5.5.1 Descriptive Statistics

The descriptive statistics in Table 5.4 show that the average human development in the sampled African countries is approximately 0.324 with the minimum and maximum values as 0.098 and 0.562 respectively. These statistics show that the average human development in Africa is very low. Using the UNDP- Human Development classification in the reports, we find that almost all African countries in our study fall into the low human development category over the period 2010-2014.

Over the period, 2010- 2014, overall Total Factor Productivity growth (TFP) averages approximately 0.12%. The international migrant remittances into Africa averaged approximately 2.80% of GDP. The minimum and maximum inflows are 0.004% and 1.43% respectively. This implying that, the volume of remittance to GDP inflow in Africa varied remarkably across the sampled countries which may not be unconnected with the peculiarities of their economies. It may, however, be explained that while some countries like Nigeria possess the prowess of attracting inward remittance flow as an important source of development finance, other countries still lag behind in this regard.

Table 5.4: Descriptive Statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
Human development	105	0.323743	0.091613	0.098	0.562
TFP Growth	105	0.117089	0.497391	-2.53596	1.29919
Remittance/GDP	105	2.795245	3.107695	0.004048	11.42615
Household consumption expenditure	105	72.58195	8.890677	51.01705	98.35637
Investment	105	22.89968	6.890551	11.47237	38.89547
Rural population/total population	105	62.39513	15.23989	33.544	85.811
Improved water source/ access	105	72.85524	15.73027	47.6	100.3
Trade/GDP	105	67.21914	19.51569	31.02589	120.5916

Source: Author's compilation **Note: Countries (N) =21, Years (T) =5**

Whereas averagely households' final consumption expenditure is approximately 72.58% of the total GDP with a maximum of 98.35% and a minimum of 51.02%, the level of average investments made during 2010-2014 is approximately 22.90 % of the GDP. Averagely rural population to total population approximates 62.40% whiles improved water source as a percentage of population with access approximately averages 72.86%. Trade over the period 2010-2014 approximately averages 67.22% of total GDP.

In table 5.5 we show the pairwise correlation matrix for the variables that are employed in the empirical analysis. Generally the overall pairwise correlation matrix of the variables exhibit very low correlation among each other except for obvious pairs such as human development, indicating high positive correlations with improved water source as a percentage of access. Apart from the significantly negative high correlations observed between rural population and improved water access and human development and rural population, by inspection, multicollinearity is not a serious concern, since almost all of the other independent variables do not exhibit very high correlations either positively or negatively.

Remittance correlates with human development positively while Total Factor Productivity growth negatively correlates with human development. Amazingly, households' consumption expenditure negatively correlates with human development as well as with investment. As expected, rural population correlates with human development negatively. As Trade to GDP ratio increases human development also increases in the same direction. The ratio of improved water source to access is also important to human development, as the two move in tandem. Each of these increases as human development increases.

Table 5.5: Pairwise Correlation Matrix

	Human development	Remittance /GDP	TFP growth	Household consumption expenditure	Investment	Rural population/ total population	Improved water source /access	Trade/ GDP
Human Development	1							
Remittance / GDP	0.194***	1						
TFP growth	-0.1168	-0.123***	1					
Household consumption expenditure	-0.226**	-0.169***	0.178**	1				
Investment	-0.0329	0.177***	0.020	-0.238***	1			
Rural population/ total population	-0.598***	-0.226***	0.0504	0.439***	-0.0609	1		
Improved water source to access	0.605***	0.252***	-0.023	-0.426***	0.071	-0.702***	1	
Trade/ GDP	0.118	0.055	0.036	-0.065	0.113***	-0.459***	0.437***	1

Note: The actual table exhibiting the P-Values are in the Appendix: *** p<0.01, ** p<0.05, * p<0.1

5.6 Discussion of Empirical Results

We estimated our result using the SGMM as presented in Table 5.6 We employed this with the possible view of handling issues of endogeneity. The Sargan statistics and the test for first and second order serial correlation of the residuals were employed to assess the efficiency of the overall model as in the lower segment of the table. The differenced equation was examined and it clearly shows that the model is correctly specified. All the instruments are uncorrelated with the idiosyncratic component of the error term.

This was established by the probability values of the Sargan tests that were greater than 0.05. This reveals that the variables in the equation employed in the regression were not over-identified. The estimates from the regression results can thus be relied upon.

In Table 5.6, the first row indicates that the past value of human development exerts positive and significant influence on its current level. The lag of human development was significant at 1%. This was predictable as human development is expected to be progressive such that past efforts and expenditure made in human development may have a direct bearing on its current value.

In all the regression results in the three columns, remittances are significantly and positively related to human development. This is expected to be so since remittances flow in to augment disposable income, decrease income inequality and assist in investment in education and the attainment of good healthcare which invariably impacts on human development (Gustafsson & Negatu, 1993). Remittances receipt also boosts consumption which leads to welfare enhancement and human development (Adams 1991). We find that Total Factor Productivity growth increases when human development is low under our coverage period 2010-2014 and this is highly significant. Indeed during the period 2010 - 2014, Africa generally experienced low growth (WDI, 2015) contrary to what Fosu (2012) found, we show that an increase in

Total Factor Productivity growth in Africa has a reductive effect on human development. TFP growth on its own does not affect human development positively and it is the inflows of remittance that spurs TFP growth to affect human development. Interestingly, our expectation that remittance may be employed to enhance human capital, which is a main driver for Total Factor Productivity growth (Nelson & Phelps 1966; Romer 1990; Benhabib & Spiegel, 1994) and invariably impact human development was exactly the case. With this intuition, we interact remittance and TFP growth to ascertain its impact on human development. It was clear that remittances are influenced by TFP growth to enhance human development. This is positive and highly significant.

While households' final consumption expenditure was highly significant having a positive effect in human development at 1% it was expected that remittances receipts would enlarge income and cushion household consumption expenditure and investments targeted at human development. On the contrary the interaction between remittance and household final consumption expenditure was observed to have a significantly negative effect in human development. It seems clearly, remittance allows for reckless expenditure which does not affect human development. This is strongly in support of the assertion of Al Mamun et al (2015) that remittance will only have a positive impact on an economy to a threshold beyond which its affect an economy negatively.

Investments, proxies as gross fixed capital formation is highly significant and positive to human development. Clearly, investments invariably lead to amassing of assets and wealth which will help alleviate poverty and enhance welfare and human development eventually. This is supported by Roy, Heuty & Letouze (2009) who assert that both private and public investment is key to kick-starting growth, reducing poverty and providing the capital goods needed to secure human development.

Without a doubt, the fact remains that higher rural population signifies low level of human development globally. Our finding invariably shows that rural population to total population ratio have a significantly negative effect on human development. This finding is in congruence with Sen (2003). Alkire, Conconi & Seth (2015) assert that Africa is 75.3% rural and Sub-Saharan Africa is 85.8% rural, indicating the multi-dimensional nature of poverty levels and low human development in Africa.

Table 5.6: Regression results

VARIABLES	Random Effect	Fixed Effect	SGMM
Initial level of Human Development			0.352***
			(0.052)
Total Factor Productivity growth	-0.007***	-0.006***	-0.006***
	(0.002)	(0.002)	(0.001)
Remittance to GDP	0.005*	0.006**	0.028***
	(0.003)	(0.003)	(0.01)
TFP growth *Remittance	0.002***	0.003***	0.002***
	(0.001)	(0.001)	(0)
Household consumption expenditure	0.002***	0.002***	0.003***
	(0.001)	(0.001)	(0.001)
Remittance* consumption expenditure			-0.000**
			0
Investment	0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)
Rural population	-0.003***	-0.003***	-0.004***
	(0.001)	(0.001)	(0)
Improved water source to access	0.003***	0.002***	0.003***
	(0.001)	(0)	(0)
Trade to GDP	0	0	-0.001***
	(0)	(0)	(0)
Constant	0.095	0.118	-0.007
	(0.091)	(0.089)	(0.064)
Observations	105	105	100
R-squared		0.611	
Number of year	5	5	5
Sargan test of Over-Identifying restrictions	chi2(180) = 171.9325 Prob > chi2 = 0.6541		

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1 Source: Authors compilation

Water is life. Water is crucial for all spheres of human life and development. Improved water source secures good health needed for human development, and in the same vein we find that improved water is significantly positive to human development. In support, Gleick (1998) gives credence to our finding that improved water source is paramount to human development.

Trade to GDP ratio remains key, as it exerts significance to human development. It, however, has a negative effect on human development. This may simply be due to negative trade balances as a result of imports exceeding exports. In support of this, Davies and Quinlivan (2006), finds that although trade may improves income it has the potential of degrading the "quality of life".

5.7 Chapter Summary

This paper examines the influence of Total Factor Productivity growth on remittance's effect on human development in twenty-one sampled African countries. We further tested whether indeed remittance boost household final consumption expenditure to affect human development in Africa. The literature suggests that while Africa is the second largest recipient of inward remittance, different countries have different capacities to utilise it as development finance. Studies have shown that remittances are a blessing through its ability to alleviate poverty, enhance education and economic growth. However, these effects have primarily been analysed separately in prior research efforts.

We examine how remittance interacts with Total Factor Productivity growth within Africa to impact human development. We use the SGMM estimator with Windmeijer's corrected standard errors and orthogonal deviations to examine the empirical relations. Several significant intuitive and extensive inferences emerged from the findings of this study. We first found that remittances are highly significant and have a positive effect on human

development. Surprisingly, Total Factor Productivity growth, though significant, has a lowering effect on human development. The interactive effect between remittance and TFP growth is however significant and has a positive impact on human development. We further find that the interactive effect of remittance receipts and households' final consumption expenditure is detrimental to human development.

We found investment to be crucial to human development since it has high chances of increasing beneficiaries' real assets and living standards. Improved water source was also discovered to favourably enhance human development. This is critical for healthy living, optimizing human capital productivity and longer life expectancy. Large rural populations adversely influence human development.

In conclusion, it is worth noting that while the majority of Africa remains rural, migration for greener pastures and its concomitant remittance inflows is inevitable. Achieving and maintaining higher levels of human developments in Africa requires partly the pro-activeness of governments in taking advantage of its predicament and expand channels of remittances inflow, create an enabling environment for human development which is a function of TFP growth influencing human development. Provision of viable and attractive investment channels will also spur human development. Developmental projects set up by government in the rural areas and infrastructural development avoiding policy syndromes which will inure to human development are important. On the other hand, recipient households need to employ remittances in a manner that will impact investment. For example, if the remittances are employed in consumption domestically, it will increase aggregate demand and lead to investment enhancing human development.

CHAPTER SIX

SUMMARY, CONCLUSION, RECOMMENDATIONS AND POLICY IMPLICATIONS

6.1 Introduction

This chapter includes the overall summary, general conclusions, policy implications and recommendations of the study. It also includes the contributions to knowledge and suggested areas for future research. The chapter is organised as follows, Section 6.2 reviews the entire work with highlights on vital findings. In Section 6.3 includes the conclusions drawn from the study, while, Section 6.4 outlines the contributions of the study to knowledge. Section 6.5 gives recommendation and finally Section 6.6 outlines the limitations in this study and also recommendations for future research.

6.2 Summary

This study borders on how international migrants' remittance through official channels could be harnessed to effect economic development through its impact on Total Factor Productivity in Africa. The entire study was put into 6 chapters. Chapter one gives a general introduction to the study. It includes the background and states the objectives of the study. It further looks at the research questions to be addressed and concludes the chapter with a summary.

The Economic Development on Africa Report of 2016 suggests that Africa is still entangled in a huge developmental resource gap. It is obvious that the developmental gap between the developed and less developed economies continue to widen. Africa's economic growth seems to be merely growth in output figures and has not translated into development which could affect the social wellbeing of its inhabitants. The Multidimensional Poverty Index (MPI) base on 2003 to 2014 data indicates that 75.3% of Africa is mainly rural compared to that of Sub Saharan Africa which is 85.8%. It looks like in the interim; governments of African countries

are helpless as to the remedy to Africa's growing and youthful population from moving to industrialised countries. Africa's bane of pervasive poverty coupled with its large population growth exacerbates its low human development levels and lack of productivity dexterity. Poverty levels in Africa signify the higher propensity for its poor inhabitants to undertake international migration as compared to richer households. The anticipation for higher remuneration, better conditions of work, better welfare and improved social systems serves as the strong drive for international migration. Meanwhile, remittance inflows into Africa continue to grow consistently overtaking Oversees Development Assistance and Foreign Direct Investments into Africa. Remittances receipt, however, could be harnessed to improve foreign exchange earnings. Additionally, remittances have immense benefits to nations over loans, sourced for national development. There are no liabilities with remittances, as the case is, with loans. Remittances do not directly get into the hands of governments, but individuals, hence are not misuse by governments. In fact, remittances are more stable inflows to individuals which may enhance their social well-being directly.

It is imperative, therefore, to explore the macroeconomic policy formulation that can play out in ensuring the ease and continuous inflows of remittance via formal financial channels. Continuous inflow of remittances through formal channels is likely to enhance the general socioeconomic and have positive impact on global peace and security. Unfortunately for Africa, it is the only continent on the globe that still relies on foreign assistance in the form of access to financial resources required to bridge the wide resource gap towards the achievement of the Sustainable Development Goals (SDGs). Finally in Chapter One, it is shown that the scope of this study is restricted to 25 African countries over the period 1990 to 2014, due to lack and complete data on all countries on the African continent.

Chapter Two of the study concentrates discussion on the stylized facts on Africa developmental financing gap. The Economic Development in Africa Report (2016) expresses

that, the depth of Africa's financial resource needs, can be met only by mobilizing its domestic financial resource. The complexity of the developmental challenges in Africa worsens its financial resource need for development. This, indeed, deepens the intensity of its capacity limitations. "It is estimated that financing the Sustainable Development Goals in Africa could require investments of between $600 billion and $1.2 trillion per year (Chinzana et al., 2015; Schmidt-Traub, 2015; UNCTAD, 2014). Infrastructure alone would cost $93 billion, but Africa can only raise half of this amount". Unavoidably, it is ideal for African countries to resort to unconventional sources of finance as supplement to its fiscal resources and domestic savings in view of the fact that the usual Official Development Assistance rolled out by donor countries, especially to the least developed countries, which are mostly in Africa have been scaled back in real terms (UNCTAD, 2015a). Remittances into Africa are identified as development finance. Africa being the second largest recipient of remittance after Asia could ride on this to propel it development through the impact of Total Factor Productivity.

The chapter also explains the measurement of remittances as purported by the IMF (2009) and also in Adenutsi (2010b). Evidently, IMF (2009) states that, "there can either be a narrow definition and measurement of international migrant remittances or a broad definition and measurement. The narrow definition is concerned with the regular transfers of funds by international migrants that are considered the more appropriate measure for the purpose of this study. In effect the definition and measurement of international remittances is the sum of workers' remittances and compensation of employees put as total remittance in the WDI (2015)". It further explains the theoretical concepts of remittance as pure altruism, pure self-interest and as insurance. The study examined the theoretical link between the development effect and international migrant remittances and shows that the main theories of international migration identified and cited in Adenutsi, (2010b) are the "Migration Optimism known as

the developmentalist, the Migration Pessimism, and the Migration Pluralism or the New Economics of Labour Migration (NELM) and Livelihood School". Since the 1960, in reference to 'international migration-remittance flow', it is these theories that have dominated in analysing the effect of International Migration as a result of the absence of an current theories on the subject of migration-remittance and the macroeconomic viewpoint on economic development (de Haas, 2007). It is observed that remittance impact the entire economy at the micro, the meso and the macro levels. The study also explains Total Factor Productivity in an economy as relating to the quantity of inputs, in terms of resources to output in goods and services. It quantifies how an economy uses the resources it has available. It is often said of TFP as not being everything, but in the long run almost everything – it is an important determinant of living standards. Furthermore the chapter clarifies theoretically and empirically how the remittances effect economic development through their impact on Total Factor Productivity.

The dearth of comprehensive macroeconomic policies on international migrant remittances' effect on labour productivity and capital accumulation serve the impetus for Chapter Three. This chapter provides insights into the macroeconomic impact of remittances on labour productivity and capital accumulation. Thus, policy implications to this end are of principal significance to guide the stimulation of the inflow of remittance. In this chapter we presented a conceptual framework which underpins the impact of remittance on both labour productivity and capital accumulation. Several studies show that remittance leads to brain drain (Faini, 2006a) and encourages the consumption of leisure through its ability to increase disposable income (Nyugen, 2008). Other studies suggest that remittances have a positive effect on access to education and that it in fact increases the probability of children attending private schools (Ponce, 2008), increases consumption and healthcare. With these opposing views and given that Africa's growing population is plagued with deprivation and the

probability of a high propensity to migrate in search of greener pastures accompanied by huge inflows of remittance, again, remittances effect on labour productivity is ascertained. In view of the endogeneity challenges associated with remittance studies the study employed a panel of twenty four African countries across the period of 1990 - 2013 to empirically test the effect of remittance on labour productivity and capital accumulation.

It was confirmed that remittance impacts labour productivity hence there is the need to strategically channel efforts at improving the efficiency in the inflows of remittances especially through formal channels. It was observed that the interaction effect of remittance and natural resources indicates that in natural resource-rich countries remittances have debilitating effects. Thus boosting the continuous inflows of international migrant remittance through official channel will be especially useful in African countries that are much less endowed in natural resources. The further interaction between remittance and life expectancy show that in countries that record high life- expectancy, the remittance effect on labour productivity is insignificant. It is further argued that at higher life expectancy more people become less productive, ineffective and inefficient. Basically people at that age have retired from active service and would prefer the consumption of leisure and apply remittances received into the purchase of healthy eating, medications and pleasure trips and holidays. It is also true that, although, remittances received by retirees cumulatively may be huge, as their income earning potential reduces toward the end of their lives, the remittance may mostly be meant for consumption smoothing. Remittances received into countries with high life expectancy (beyond fifty five year) decrease labour productivity significantly. It also indicates that, beyond remittance receipts, policies that tend to encourage financial openness and raise incomes are vital for labour productivity. Empirically it shows that although remittances directly increase capital accumulation (domestic savings), it largely increase capital accumulation through human capital. This suggest that, remittances promote capital

accumulation in countries with high quality of human capital, meaning that, remittances could be put to a more productive use that could affects the accumulation of capital if the recipients are educated. Inflation rate and interest rate summarise the state of the macro economy of a nation. An unstable macro economy will erode capital. The pursuit of policies that tends to stabilise the macro-economy in Africa is imperative for increasing capital accumulation. It is expected that Africa will continue to confront its setbacks with its hard cash receipts through remittances capital, leap frogging its capital base and providing opportunities to improve human capital.

The study then progressed to Chapters Four. The quest in this chapter was to empirically test the effect of remittance on the components of Total Factor Productivity in African countries. The intuition was that if TFP is a composition of basics characteristics, then it is essential to know exactly which of the characteristics dominates the positive effect of remittances on Total Factor Productivity or what otherwise can be accountable to the negative effect of remittance on TFP. To achieve this, the Malmquist productivity index approach was employed in the context of macroeconomics. With this view, the countries were evaluated as producers of output (real GDP) with given inputs as physical capital stock and labour. With this, we compute for technical change, efficiency change and productivity growth for the sample of countries used as done by Vandenbussche et al. (2006) in the decomposition of TFP. We further estimated a dynamic panel data model using data on twenty three African countries for 25 years from the period 1989–2013. Panel data techniques enhance the variability of the data and allows for increase in the degrees of freedom. It also includes within-country standard deviation as well as between-country standard deviation being the time variation effect. It uses the model specification similar to the work of Zeller, (1962) and Danquah and Ouattara, (2014) on their empirical growth model. The estimation technique

employed in this study was the Seemingly Unrelated Regressions (SUR) model developed by Zeller, (1962).

Geweke (2003, p. 162) explains that "the seemingly unrelated regressions (SUR) model is the most widely used econometric model after linear regressions, as it provides a simple and useful representation of systems of equations. The SUR model is a collection of two or more regression relations that can be analysed with data on the dependent and independent variables. For many years, the individual regression relations were fitted one by one, usually using least squares techniques and justified by an appeal to single equation estimation optimality properties". The study indicated that remittance inflows are very important and significant to technical change and TFP growth. Remittance increases the disposable income of its recipients, those who receive remittance are able to afford the cost involved in acquiring ideas, new processes, knowledge, can acquire skills which are crucial for innovation (technical change) There is no doubt that innovation cannot happen without money. Remittances enable recipients to buy new technologies, buy plant and machinery that push the frontiers of TFP. The rewards of innovation inevitably, almost always, lead to productivity.

In Chapter five, the study to examined the effect of Total Factor Productivity on Human development through the impact of migrant remittances. It particularly examined the direct and indirect effect of remittances on human development. To achieve this, the study employed the use of 25 African countries over the period 2010-2014 in a dynamic panel-data model. The estimation technique used is the system Generalised Methods of Moments. The inequality-adjusted human development index was employed as a proxy for human development. The chapter displays the conceptual framework which gives an insight into how remittance impact total factor productivity to effect human development.

The study employs the SGMM because the balanced panel use has a small sample size due to insufficient data on the IHDI. The IHDI covers only a period of five years - 2010-2014 hence employing the use of orthogonal deviations to maximize the sample size (Roodman, 2006; Agbloyor, Gyeke-Dako, Kuipo & Abor, 2016). Again, the SGMM approach allows the treatment of development as a dynamic process, thus accounting explicitly for the possibility that previous development has the tendency of impacting future development. SGMM approach is useful in this study as it allows for the control for endogeneity among explanatory variables. The Sargan/ Hansen test of over identification restrictions and the Arellano and Bond test for second-order serial correlation in the error term allows for the checking of consistency of our estimates. The Sargan/Hansen test is also a useful in testing the validity of the instruments by analysing sample similarities of the moment conditions used in the estimation. By construction, the error term may be serially correlated in the first order. However, second-order serial correlation is a sign of misspecification. The result indicates that remittance directly impact and has an increasing positive effect on human development, meanwhile Total Factor Productivity has a lowering effect in human development. It is actually remittances that drive Total Factor Productivity to impact human development positively.

6.3 Conclusion

In conclusion, we add that the study achieved its set objectives. The study indeed, showed that, migrants' remittances are employed by its recipients into the acquisition of skills and training which invariably has a positive effect on labour productivity. The indication from our finding is that migrants' remittances into Africa are not absolutely employed in the consumption of leisure as is being purported in the literature. Again, remittances do not reduce labour supply but rather increases the productivity of labour. The study also found that migrants' remittances, do not directly lead to capital accumulation but rather it is the

interaction between remittance and human capital that lead to capital accumulation. The implication is that, it is human capital that drives remittances to effect capital accumulation.

The study further shows that, although migrants' remittances are received by households, it 'comes in handy' for use in acquiring skills, training, and knowledge in technology as well as the actual technology, for innovation and growth in TFP. We find indeed, that remittances have a positive impact on technical change (innovation) and Total Factor Productivity growth but not efficiency. Intuitively, this is justifiable, as acquiring innovative process involves the use of money. In acquiring new ideas, skills and training, in order to innovate involves cost. In the same manner the purchase of simple technology for innovation, which invariably leads to TFP growth, has financial implications.

Finally, we show that Total Factor Productivity does not directly lead to human development in Africa. However, it is international migrants' remittances that serve as a catalyst for Total Factor Productivity to ignite human development as far as poverty alleviation, educational attainment and life expectancy are concerned. Generally, migrants' remittances whether consume or invested are key and contribute more positively to the human development.

6.4 Contributions to Knowledge

This study contributes to knowledge in several ways including the fact that this is the most current study on cross-section of 25 Africa countries over a period of 25 years (1990-2014). Again, this is the most thorough study that conceptualises and empirically tests how international migrants' remittance could lead to labour productivity and capital accumulation in Africa. Using the Generalised Methods of Moment (GMM), the study empirically shows that, while remittances directly lead to labour productivity, they do not directly lead to capital accumulation. Rather, it is human capital that drives remittances to effect capital accumulation. In further contributing to literature, we show that in resource-rich countries,

remittances have a lowering effect on labour productivity. We also reveal that, although inflows of remittance increase in countries with high life expectancy, it also has a debilitating effect on labour productivity.

Additionally, study has contributed to knowledge by putting forth a thorough conceptual framework that shows how remittances, on the one hand, could be invested in physical capital translates into capital accumulation whiles on the other hand, remittances invested in human capital leads to labour production. The study adds to knowledge by further developing a conceptual framework to comprehensively show how remittances trigger Total Factor Productivity to positively impact human development.

Again, the study contributes to literature by associating international migrants' remittances to the components of Total Factor Productivity- technical change, efficiency and TFP growth. The study decomposes TFP by the use the output based Malmquist productivity index approach in a macroeconomic context. Then using the Seemingly Unrelated regression (SUR), study show that international migrants' remittances although household receipts, cumulatively has the potential of affect innovation and growth in TFP in Africa positively.

Finally, the ground-breaking contribution in this study, remittances studies, is the contribution to method. The study uses the 'inequality-adjusted human development'-the IHDI- as a proxy for human development. This is novel and it is the first known attempt at an empirical exercise in this endeavour. Empirically, we additionally show that, indeed Total Factor Productivity directly does not enhance human development, but rather it is migrants' remittances in Africa that drives Total Factor Productivity to positively boost human development.

6.5 Recommendations and Policy Implications

Africa's growing population, plagued with deprivation signifies the probability of a high propensity to migrate in search of greener pastures. This is accompanied by huge inflows of remittance, confirming Africa as the second largest recipient of remittance. However, there is dearth of comprehensive macroeconomic policies on remittances' impact on labour productivity and capital accumulation. Thus, Policy Implications to this end are of principal significance to guide the stimulation of the inflow of remittance.

Given that remittances impact labour productivity, there is the need to strategically channel efforts at improving the efficiency in the inflows of remittances, especially through formal channels. Boosting the continuous inflows will be especially useful for African countries that are much less endowed in natural resources. The findings show that beyond remittance, policies that tend to encourage financial openness and raise incomes are vital for labour productivity.

Additional, as shown in the findings, although remittances directly reduce capital accumulation (domestic savings), it indirectly increase capital accumulation through human capital. This suggests that remittances will promote capital accumulation in countries with high quality of human capital. Since quality human capital is important for capital accumulation, a more pragmatic approach in pursuit of national agenda that seeks to equip labour with requisite skills through training is imperative for Africans governments. This will inure to labour productivity and capital accumulation.

Inflation rate and interest rate summarise the state of the macro economy of a nation. An unstable macro economy will erode capital. The pursuit of policies that tend to stabilise the macro-economy in Africa is imperative for increasing capital accumulation. It is expected that Africa will continue to confront its setbacks with its hard cash receipts through

remittances capital, leapfrogging its capital base and providing opportunities to improve human capital.

Several policy implication can be put across resulting from this study, however the dominant ones include, firstly: in pursuant of funding Africa's development resource gap to achieve the needs to grow into independence and finance its own growth and development agenda "Agenda 2063" international migrant remittances can subsidise the resource mobilisation of domestic resources-savings and taxes- in the context of development finance. Effective macroeconomic policies are needed in the mobilisation of remittance and also for effective use.

Secondly, it is implied that in the pursuit of Africa's development, international migrants' remittances as physical capital are as vital as the progress of its human capital. In the wave of the increase in population growth in Africa, appropriate macroeconomic policies will have to drive human capital development which in turn will dictate the optimal use to which remittances can be put. It is believed that, the derivation of optimal benefits from migrant remittances is premised on how educated its recipients are, which calls for the application of remittances in a manner that will lead to labour productivity and capital accumulation.

Thirdly, the colossal international migrants' remittances into Africa coupled with it natural resource endowments have serious important implications on labour productivity and so in the absences of suitable and operative macroeconomic policies on the mobilization of remittances from their diasporas citizens. The dynamics of labour productivity changes due to the continuous flow of remittance increases disposable income and increases the consumption of leisure and reduces labour participation.

Fourthly, indeed international migrants' remittances affect Total Factor Productivity through if they are effectively invested in the domestic market. There are developmental implications

which require policy decisions in view the effects of migrants' remittance on the size of domestic productive sectors lead to the generation of dynamic production externalities which invariably affect the components of TFP. Technical change leads to innovative processes that stem from varied related pedigrees which are propelled from two basic theoretical approaches, the "Demand pull" on the one hand and the "Technology push" which on the other hand defines technology as autonomous or quasi-autonomous factors, at least in the short run. It is imperative that African countries characterised as emerging markets receive more remittances via the official financial channels which are capable of propelling production externalities for growth and development. Meanwhile, the majority of the remittances received by the continent are through the unofficial channels

Finally, Total Factor Productivity (TFP) is necessary but not a sufficient condition to bring about human development. It is international migrants' remittances that act as conduit and catalyses for TFP to effect human development. It implies that the solicitation of an inclusive progressive strategy is unavoidable to exploit the 'developmental-impact' of migrant remittances via TFP. In fact, it is important to count on migrants' remittances as the main source of far-reaching targets for growth and development in remittance-receiving African countries.

Therefore, the most significant endorsements of this study to tell policy initiatives are based on the fact that, obviously there is need for policy makers in Africa to take advantage of its growing and active population in the diaspora, to ensure effective mobilisation on international migrants' remittances through official channels, which is paramount beyond Official Development Assistance which is encumbered with anachronistic donor conditions rather than its own progressive agenda. For the bridging of its development financial gap, it is best and unavoidable, that African countries glean from unusual sources of finance, as migrants' remittance in addition to its fiscal resources and domestic savings to build

productive capacity and implement the Sustainable Development Goals in pursuance of 'Agenda 2063'.

Efforts must be directed at creating avenues through which migrants' remittances could be employed in deepening the pursuit of ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all. This will translate into the productivity of labour. Remittances do not directly lead to capital accumulation; the propensity to save and accumulate capital is as a result of the level of education and/or financial investment appreciation. Low levels of education ignite mediocrity in Africa. As a policy direction, the formal channels through which remittances are received can introduce distinguished products and services that ease receiving of remittance such as online banking and mechanising the cash transfers systems through the use of innovative technological, which are needed to reduce the cost of handling international money transfers and enhance the inflows of remittance.

The continuous migrants' remittance inflows into natural resource-rich countries increasingly worsen recipient's consumption of leisure, as remittance increases disposable income. Policy makers could raise a lot of revenue by increasing taxes on the consumption of leisure and granting incentives for productive investments rather than by conspicuous consumption. The link between work and human development is synergistic. Work enhances human development by providing incomes and livelihoods by reducing poverty and by ensuring equitable growth and development. Policy makers in Africa must, therefore, pursue complementary pro-developmental strategies towards eliminating economic distortions that favour the rich against the poor, so as to reduce poverty. Creating jobs, reducing unemployment, enhancing health, knowledge, skills and awareness, capacity building, vocational training, access to venture capital , reducing income inequality all increase human

capital and broaden opportunities and choices and thereby economically empowering its inhabitants are all key to human development.

Policy makers in Africa must target creating a national culture that aims at enhancing efficiency and reward innovativeness as indeed remittances in Africa drive Total Factor Productivity to affect human development positively, and although remittances are undeniably household receipts, their cumulative effect could drive the components of Total Factor Productivity such as innovation, efficiency and growth. It is therefore expedient that Africa takes advantage of its increasing population and increasing migration for greener pastures to enhance its human development towards closing up the inequality gap between the high-income and the economically vulnerable and poor groups of society at all levels of economic progress.

6.6 Future Research Direction and Limitation of the Study

The issue of data was a major setback to this study. The use of secondary sources of data has mostly quality implications. The study relied primarily on secondary sources such as the World Bank Development Indicators (WDI), International Monetary Fund (IMF), IMF staff Papers, Conference Board Data, and Penns World.

Most African countries lack up to date data. Countries like Guinea, Guinea-Bissau and Seychelles, Mauritius, Namibia and São Tomé and Principe records missing data on vital published macro variables, right from 1980-1995. In view of the reliability of the sources, from which, extensive amount of the essential data used in the study were sourced, the validity of the empirical results obtained from this study are not adversely affected by quality data. Accordingly, as far as the quality of data is concerned, the empirical results of this study can be taken as consistent and reliable.

In spite of the above-mentioned contributions of this study, the direction for future linked research should be address the following relevant matters which could not be attended to in this present study. The migrant remittance data used are only from formal channels, remittance from informal channels have been ignored. Assessing the effect of migrant remittance in their home countries is mostly used here, however analysing the counter effect of remittance in the migrants host country will be beneficial to labour-importing countries.

Measuring the volatility of international migrant remittance into Africa will be helpful to the assessment of its impact on consumption and human development. Finally, because it was found in this study that remittances affect both human capital and physical capital, it would be expedient to assess whether human capital and physical capital within the recipient country Granger-causes massive inflows international migrant remittance inflows.

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Appendix

Appendix A1: Target Population and the Sample

Table A1: Target Population and the Sample

Country	Sampled if No or Yes	Country	Sampled if No or Yes
Angola	No. lack of enough data	Benin	Yes
Botswana	Yes	Burkina Faso	Yes
Cameroon	Yes	Cape Verde	No. lack of enough data
Chad	No. lack of enough data	Comoros	No. lack of enough data
Congo	No. lack of enough data	DR Congo	Yes
Côte d'Ivoire	Yes	Djibouti	No. lack of enough data
Egypt	Yes	Equatorial Guinea	No. lack of enough data
Eritrea	No. lack of enough data	Ethiopia	No. lack of enough data
Gabon	Yes	The Gambia	No. lack of enough data
Ghana	Yes	Guinea	No. lack of enough data
Guinea	No. lack of enough data	Lesotho	No. lack of enough data
Liberia	No. lack of enough data	Libya	No. lack of enough data
Madagascar	Yes	Malawi	Yes
Mali	Yes	Mauritania	No. lack of enough data
Mauritius	Yes	Morocco	No. lack of enough data
Mozambique	Yes	Namibia	No. lack of enough data
Niger	Yes	Nigeria	Yes
Rwanda	No. lack of enough data	São Tomé and Príncipe	No. lack of enough data
Senegal	Yes	Seychelles	No. lack of enough data
Sierra Leone	No. lack of enough data	Somalia	No. lack of enough data
South Africa	Yes	South Sudan	Yes
Sudan	Yes	Swaziland	No. lack of enough data
Togo	Yes	Tunisia	Yes
Zambia	Yes	Zimbabwe	Yes

Appendix A2: Sampled African Countries and their Labour productivity Growth

Table A2: Sampled African Countries and their Labour productivity Growth

Ccode	Country	LPGrowth %	Ccode	Country	LPGrowth %
1	Algeria	-0.05	14	Morocco	0.95
2	Angola	3.40	15	Mozambique	4.95
3	Burkina Faso	2.80	16	Niger	0.02
4	Cameroon	-0.06	17	Nigeria	2.90
5	Côte d'Ivoire	-0.02	18	Senegal	0.70
6	DR Congo	-2.00	19	South Africa	1.00
7	Egypt	1.10	20	Sudan	2.20
8	Ethiopia	2.50	21	Tanzania	2.50
9	Ghana	2.90	22	Tunisia	2.80
10	Kenya	3.00	23	Uganda	3.50
11	Madagascar	-1.00	24	Zambia	1.00
12	Malawi	1.50	25	Zimbabwe	0.02
13	Mali	1.50	-	-	-

Source; Authour's compilation

Appendix A3:
Summary of Malmquist Productivity Index and Data Envelopment Analysis (DEA)

Employing the Malmquist index approach, as put forth by Färe *et al*. (1994) and Coelli and Rao (1999), we measure the total factor productivity (TFP) growth in different countries. The Malmquist index method utilises the 'data envelopment analysis' (DEA) to build a piece-wise frontier in a linear production equations for each country in each year in the sample.

It is the DEA procedure employed in the calculating of the Malmquist productivity index, grounded on the premise of the presence of a production technology which alters a multi-dimensional vectors of input, for instance *x*, into a multi-output vectors, of say y.
This is underpinned with the fact that the technology of the production function is presumed to address the basic axioms including the most essential properties of (1) weak or strong disposability of outputs and (2) weak or strong disposability of inputs and among others like (3) Possibility of inactivity; (4) closed and bounded production possibility sets; (5) closed input sets; and (6) input and output convexity (Danquah & Ouattara 2014). Again, this current study also assumes that the constant returns to scale of the production technologies adopted and hence addresses global or local perspectives.

DEA employs input and output data quantities in a linear programming to build a piece-wise linear surface over the data points of the number of countries across the years in the study. Thus the linear programming process is sequentially - one for each country in the study.
It follows therefore that the residual of the frontier approach is attributable by the degree of technical inefficiency of each country. DEA however can be either output-orientated or input-orientated. Appling a constant return to scale (CRS) technology, both of these measures provide the same technical efficiency scores, although they are not always equal when variable returns to scale (VRS) is assumed.
Ideally countries endeavour to generate output by making the most out of their wealth endowments and theirs sets of given inputs rather than the reverse. In view of this, we adopt the output- orientation approach for study which is more ideal.

The linear programming issue of the DEA model therefore, in an output-orientation for N number of countries for a specific period of time explained for the i-th country is as follows (as cited in Danquah & Ouattara, 2014):

$$Max_{\varphi\gamma}\varphi$$

$$st - \varphi y_i + Y\gamma \geq 0$$

$$x_i - X\gamma > 0$$

$$\gamma > 0 \qquad \text{A3i}$$

Thus, yi is a M ×1 vector of output quantities for the i-th country;

xi is a K ×1 vector of input quantities for the i-th country;

Y is a N ×M matrix of output quantities for all N countries;

X is a N × K matrix of input quantities for all N countries;

λ is a N ×1 vector of weights; and φ is a scalar.

Holding the input quantities constant, φ assumes a value greater than or equal to one, such that φ −1 is the proportional increase in outputs that could be achieved by the i-th country. 1/φ therefore represents the technical efficiency (TE) score which varies between zero and one. Countries that are efficient are on the frontier and records scores that is equal to 1 and countries that are inefficient records scores less than 1. Thus for each country employed in the sample, the linear programming described earlier will have to be solved N number of times.

In the decomposition and computing of the Malmquist TFP index measures using the DEA, we compute the ratio of the distances of each data point relative to a common technology. Subsequent to Färe et al. (1994), the output-orientated approach of the Malmquist TFP change index between period s which is the base period and the period t is given by the equation Aii.

$$m_0(y_s y_t x_s x_t) = \left[\frac{d_o^s(y_t,x_t)\ x\ d_o^s(y_t,x_t)}{d_o^s(y_s,x_s) x\ d_o^s(y_s,x_s)}\right]^{1/2} \qquad \text{A3ii}$$

From equation Aii $d_0^s(x_t, y_t)$ represents the distance from the period t observation to the period s technology. A value of m_0 greater than one will indicate positive TFP growth from period s to period t while a value less than one indicates a TFP decline. The geometric mean therefore of the two indices of TFP is what is seen in equation Aii, evaluated with respect to period 's' in the first technology and the second technology with respect to period 't'.

Equally the productivity index can be rewritten as in equation Aiii. The ratio outside the square brackets measures the change in the output-oriented measure of Farrell technical efficiency between period s and t.

$$m_0(y_s y_t x_s x_t) = \frac{d_0^t(y_t x_t)}{d_0^s(y_s x_s)} \left[\frac{d_0^s(y_t,x_t)}{d_0^t(y_t,x_t)}\ X\ \frac{d_0^s(y_s,x_s)}{d_0^t(y_s,x_s)}\right]^{1/2} \qquad \text{A3iii}$$

The other part of the index is a measure of technical change. The required distance measures for the Malmquist TFP index can be calculated using DEA-like linear programs (Färe et al., 1994).

Appendix A4: Twenty one African countries employed in the study 2014 Data.

Table A 3: Twenty one African countries employed in the study 2014 Data.

countries	HDI	IHDI	REMGDP	TFP
Burkina Faso	0.402	0.261	1.149805	-0.92511
Cameroon	0.512	0.344	0.794875	-0.38026
Côte d'Ivoire	0.462	0.287	1.29782	4.771686
Egypt	0.69	0.524	7.318898	0.663706
Ethiopia	0.442	0.312	1.815736	3.524794
Ghana	0.579	0.387	0.442038	0.512435
Kenya	0.548	0.377	1.859074	0.440679
Madagascar	0.51	0.372	0.217655	-1.05416
Malawi	0.445	0.299	0.667455	-2.33244
Mali	0.419	0.27	7.364214	0.150518
Morocco	0.628	0.441	8.946965	-1.92419
Mozambique	0.416	0.273	1.47271	-0.54421
Niger	0.348	0.246	1.884638	-0.81983
Nigeria	0.514	0.32	5.369781	-2.45678
Senegal	0.466	0.305	11.17615	-3.0804
South Africa	0.666	0.428	0.265164	-3.27065
Tanzania (United Republic of)	0.521	0.379	0.136125	2.088295
Tunisia	0.721	0.562	5.008363	-0.8438
Uganda	0.483	0.337	5.968232	-0.98383
Zambia	0.586	0.384	0.269201	1.076261
Zimbabwe	0.509	0.371	0.296265	0.05243

Source: Authors own compilation (Human Development Index and Inequality- Adjusted Human Development index was sourced from the 2015 HDR, Remittances to GDP ratio was sourced from World Bank WDI, 2015, Total Factor Productivity growth data from Conference Board Data)