

UNIVERSITY OF GHANA

**CORRELATES OF POVERTY IN AFRICA: EXPLORING THE ROLES OF
REMITTANCES, FINANCIAL DEVELOPMENT, AND NATURAL RESOURCES**

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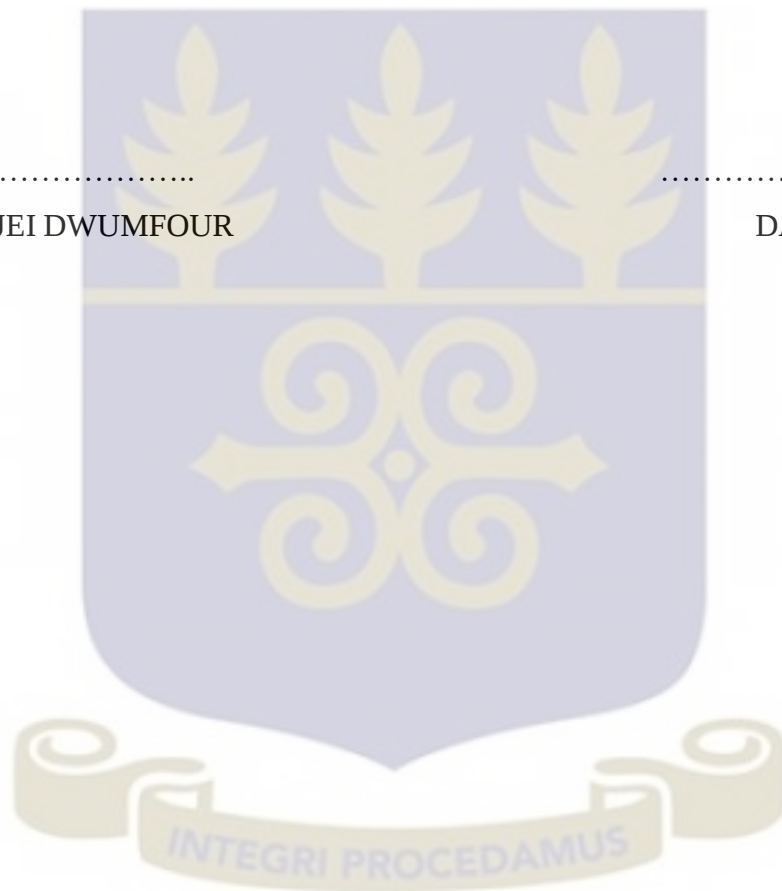
DECLARATION

I hereby declare that this work is the result of my own research and has not been presented by anyone for any academic award in this or any other university. All references used in the work have been fully acknowledged.

I am solely responsible for any shortcoming.

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CERTIFICATION

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

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DEDICATION

I dedicate this thesis to the Almighty God and to my dear family for their love, care and support throughout my study.

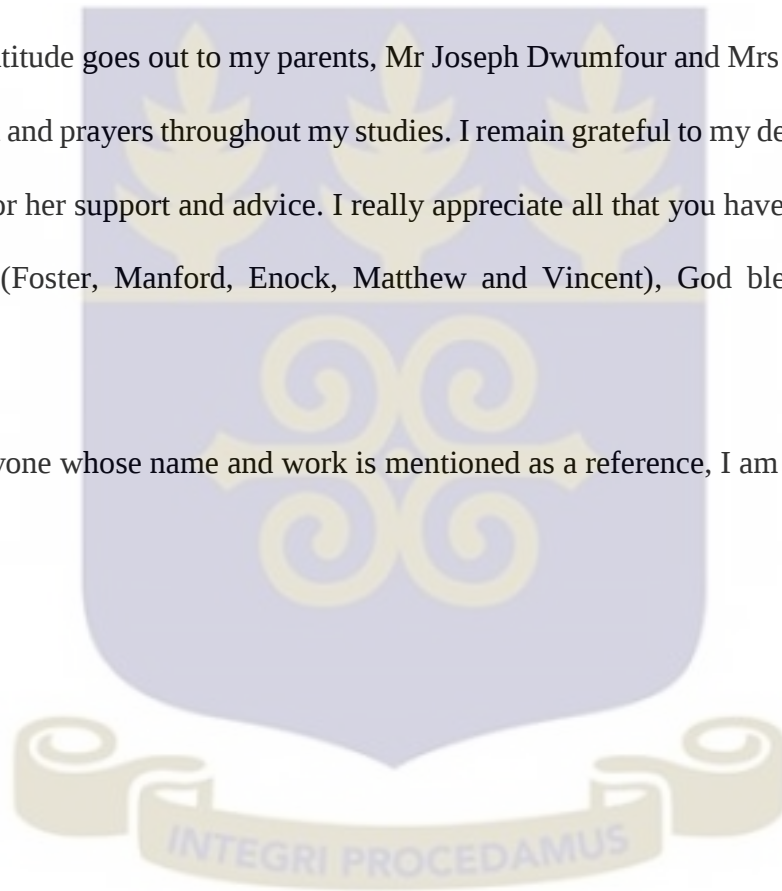


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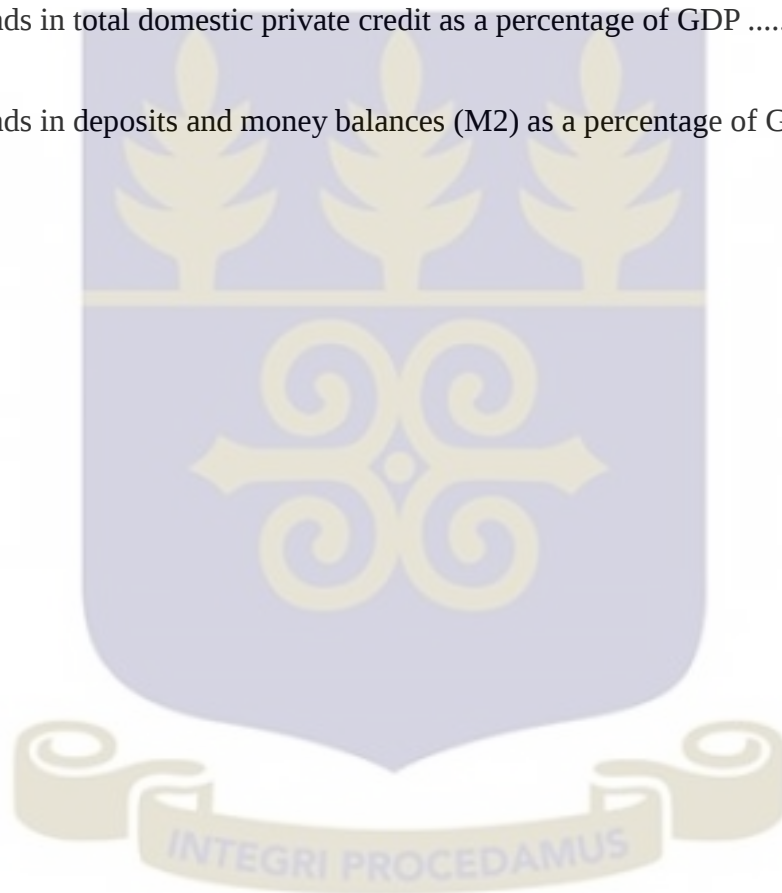


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ABSTRACT

This study examined the correlates of poverty in Africa, exploring the roles of remittances, financial development and natural resources. Using the Human Development Index (HDI) as our measure of poverty and using 54 African countries, we specify these relationships using the System GMM estimator approach. The results show that in Africa as a whole, remittance reduce welfare directly. This supports arguments that, it is mostly the rich who can afford to migrate and thus remit more to their families than the poor and that, remittance received may be used in unproductive ventures. This was mostly seen in the North African (NA) region where remittance was consistently seen to reduce welfare. The direct impact of remittance in the Sub-Saharan (SSA) region was ambiguous depending on the specification of the model. However, remittance was seen to be effective in improving welfare when there is better or wider access to credit by the recipients of the remittances. The results for the continent also revealed that the impact of financial development on welfare was ambiguous. While M2 had no impact on welfare, credit to the private sector reduced welfare directly. This supports arguments that credit may tend to benefit the rich than the poor. This was especially so in SSA. Further analysis revealed that proper regulation of the financial sector that is inclusive of the poor could then lead to a positive impact of financial development on welfare. Further, credit was effective in improving welfare indirectly when it complements remittances. The continent as a whole has failed to utilise its natural resource wealth (minerals) to benefit the poor as it showed no impact on welfare. This supports arguments of African governments' failure to harness their resource wealth to benefit the poor. This was particularly so for the SSA region while for the North African region, its oil rents was effective in improving the welfare of the people. On the controls, FDI was seen to improve welfare while foreign aid had no impact on welfare and even in some cases a negative impact. Stronger institutions were seen to consistently improve welfare. Development of infrastructure was seen to improve welfare. Our findings are robust in showing the application of our results to a variety of changes in specifications, definition of variable and data usage.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

From Africa to the Middle East, from Asia to the Americas, to Europe and to the Antarctica, people still live in abject poverty. Poverty itself goes beyond the income measure. It is complex and multidimensional. As put by the World Bank (2000), “poverty is pronounced deprivation in well-being” where well-being can be measured by an individual’s possession of income, health, nutrition, education, assets, housing, and certain rights in a society such as freedom of speech. It is also a lack of opportunities, powerlessness, and vulnerability.

The elimination of widespread poverty has been at the core of all development problems and in fact define for many people the principal of development policy (Development Initiatives, 2012). The first target of the Millennium Development Goals (MDGs) which is to halve, between 1990 and 2015, the percentage of people who lives on less than \$1 a day shows the importance of poverty to development agenda¹.

As put by Adam Smith (1776): *“No Society can surely be flourishing and happy, of which by far the greater part of the numbers are poor and miserable”*

Indeed, the focus of most governments, development agencies, NGOs as well as citizens in general has been on ending poverty and extreme poverty. Owing to this, African governments have been committed to improving their economies with the support of development partners.

¹ United Nations (2009) now actually tracks the progress toward target one of the MDG in terms of those living below \$1.25 income per day at 2005 prices.

Evidence has shown that Africa's economies are consistently growing faster than those of the rest of the developing world (Chuhan-Pole, Luc, Mapi, Allen, Gerald, Manka, Vijdan, Camila, & Aly, 2013). As indicated by Chuhan-Pole et al. (2013), Sub-Saharan Africa's (SSA) economy has grown more than the rest of the developing world. They show that the SSA region expanded at an estimated 4.6 percent per year during 1999–2010 (5.2 percent excluding South Africa). This exceeds by more than 0.9 percentage the average annual growth rate of the rest of the developing world (excluding China) and that in fact three of the world's 10 fastest-growing countries were in Sub-Saharan Africa.

The irony is that despite the continent's growth turnaround, poverty in Africa remains unacceptably high, and the pace of reduction unacceptably slow (Anyanwu, 2013). Chuhan-Pole et al. (2013) observe that almost one out of every two Africans lives in extreme poverty today, while they posit that under any plausible scenario, most of the world's poor people will be living in Africa by 2030. The disheartening revelation is that average incomes of the extreme poor in Sub-Saharan Africa are often far below the \$1.25 a day poverty line (World Bank, 2013). As researchers and policymakers have come to realise the growing importance of poverty in developing countries, a number of studies have analysed various correlates of poverty along various dimensions, including: remittances, financial development, inequality, economic growth, education, official development Assistance (ODA), and natural resource wealth (Adams, 2005; Adams & Page, 2005; Gupta *et al.*, 2009; Anyanwu, 2013). Some of the above relations have been examined in isolation in various contexts. For instance, Adams and Page (2005) gave an international study of the relationship between remittances and poverty found that remittance reduces poverty levels. On the other hand, Gupta et al. (2009) studied the impact of remittance on poverty and financial development but not both remittance and financial development on poverty. However, our main variables of interest: remittances,

financial development and natural resources have to be estimated jointly to test their impact on poverty in order to avoid omitted variable bias. Thus, a well-specified test of these relations should be carried out jointly for all three explanatory variables. This study focuses on the roles of remittances, financial development and natural resource in reducing poverty in a single study.

Indeed, the dire poverty situation in Africa has caused some Africans to migrate to other countries to seek for greener pastures. The migration of people across national borders has now become an essential part of global development. There are currently more than 215 million international migrants worldwide, about 3% of the world's population (World Bank, 2011a). Remittances, the money sent home by migrants, have proved to be a large and stable resource flow for developing countries (Ratha and Mohapatra, 2013). Officially recorded remittance flows to developing countries reached an estimated \$401 billion in 2012, growing by 5.3 percent compared with 2011 (Aga, Eigen-Zucchi, Plaza & Silwal, 2013). As indicated by Aggarwal et al. (2011) and Giulia & Zazzaro (2011), these remittance-transfers have grown to become one of the largest sources of financial flows to developing countries, often exceeding the traditional inflows such as private capital flows and official aid. Studies have therefore found remittances to have a mitigating effect on poverty levels (World Bank 2006; Adams & Page, 2005; Anyanwu & Erhijakpor, 2010). However, earlier studies, like those of Lipton (1980) and Stahl (1982) posit that, migration is likely to increase rural inequality. They posit that, relatively, it is only the better-off households who are able to finance a member's search for better employment in urban areas, or abroad. Even a more recent study by the World Bank (2007) show that migration patterns in Eastern Europe, and Former Soviet Union countries are such that, richer households receive greater remittances than do

poor households. Thus, the evidence remain mixed. Hence, the need for this study to add to the body of literature with evidence from Africa.

Further, the development of the financial sector of a country can have an impact on poverty. While some studies posit a direct link between financial development and poverty reduction (Odhiambo, 2009), other studies (Haber *et al.*, 2003; Bourguignon & Verdier, 2000) do not find any evidence to support the direct impact of financial development on poverty. Beck, Demirguc-Kunt and Levine (2004) indicate that, whether financial development benefits the whole population or not is not widely conclusive. They assert that financial development can primarily benefit the rich, or can help the poor. Other studies find an indirect link through different transmission mechanism and frameworks of the study area (Bourguignon, 2001; Herger, Hodler & Lobsiger, 2007; La Porta *et al.*, 1997). For instance, financial development can be a channel through which remittances can effectively tackle poverty. Thus, the remittances sent home every year by the Africans abroad should create a doorway to greater opportunities, and the key to this door may be its financial access. In the light of these, this study examines the relationship between financial development and poverty in Africa exploring both the direct and indirect channels. We thus hypothesize that, while financial development may reduce poverty directly, it may be more effective as well in tackling poverty indirectly through different channels.

In another light, a country's use of its natural resource revenue can help mitigate poverty. The optimism often expressed that natural resource abundance will lead to prosperity seems a mirage. Evidence show that the populations inhabiting many resource rich countries are unusually poor, unhealthy, and politically oppressed (Deacon, 2011). Other discourse suggests that natural resources can help end poverty in Africa (Naqvi, 2013). Naqvi (2013) argues that

if Africa could follow the path of Iran and Alaska towards equity by sharing mineral revenues with citizens then Africa could be on the verge of eradicating poverty. In a cross country case study analysis, Ormonde (2011) examined whether mineral resource rents have helped to reduce poverty rates in nations with an extensive mineral base. The study found that some countries have indeed utilized mineral rents to drive strong economic growth and reduce poverty while others haven't. It is important to note that in these studies, one or two resource indicators were used. The motivation for this study is to re-examine the natural resource-poverty relationship taking into considering different measures of resource wealth to test how the relationship will be. Also, the dynamics of the impact of natural resources on poverty should be re-examined as contrary evidence have been found.

Thus, our study explores linkages between three key facts about poverty in Africa- remittances, financial development, and natural resource wealth and how they can help reduce poverty in Africa. One other novelty of this study is to allow for testing the potential alternative channels through which the main correlates (remittances, financial development and natural resources) affect poverty reduction in Africa.

1.2 Problem Statement

Despite African countries increasing the levels of investment in education, health and nutrition, increased participation in decision-making and reduced military spending, among other human development strategies, the outcomes however have been mixed, and there have been large variations in their poverty performance (Arimah, 2004). It looks like achieving the Millennium Development Goal of eradicating extreme poverty and hunger before 2015 is a mirage in Africa (Adeyemi, Ijaiya & Raheem, 2009). This is against the backdrop of a number of factors, such as, macroeconomic instability – which include increase in the rate of inflation and exchange

rate instability; socio-political instability (e.g. ethnic/religion and civil conflicts), external debt burdens, adult illiteracy, lack of social services (e.g. health care, safe water and sanitation), and health issues such as HIV/AIDS that have continued to reverse development initiatives and efforts. More specifically, we postulate two questions that we believe are critical to academic research and public policy for development, namely: why is Africa still the poorest region in the world despite the abundant resources and government's commitment to poverty reduction? And what can be done to deliver the sustainable and broad-based inclusive approach required to address this?

As indicated earlier, several dimensions have been explored in relation to poverty reduction. However, the dynamics of how remittances, financial development and natural resource wealth on poverty in Africa and its sub-regions in one study has not been examined. This study fills this research gap. Firstly, the interaction between remittances and financial development should be examined. Specifically, this study postulates that even though the effect of remittances on poverty is ambiguous, countries with well-developed financial sector may be better at unlocking the potential for remittances to contribute to reduction in poverty. The inclusion of the interaction term in this equation is based on the debate in the literature on whether these two variables are complements or substitutes (Mundaca, 2005; Bettin & Zazzaro, 2008; Nyamongo, Misati, Kipyegon, and Ndirangu, 2012; Bettin & Zazzaro, 2012). While the evidence on the contemporaneous effect of remittances on welfare may be mixed, it is likely that remittances can be effective in improving welfare when there is financial development targeted at the poor. Again, we argue that remittance will be more likely to contribute to poverty reduction when the remittance receiving countries' political and economic policies and institutions create incentives for financial and business investment and savings from remittances. For this, we include interaction between remittance and institutional quality

variable based on the assertion that the implementation of economic and governance policies that support a sound business investment environment, provide for the prudential security of the financial sector and quality public services is key to the remittance-poverty nexus. Institutions must favour policies that encourage savings and investment so that, at the margin, household income that exceeds the needs of basic subsistence can be saved or invested (including investment in human capital). Hence, remittances may be, more or less, effective in reducing poverty by including interaction terms between remittances and institutional quality.

Also, the specific channel through which financial development has to reduce poverty needs to be examined. According to the McKinnon's (1973) complementary hypothesis, indicate that in a developing economy where there are weak financial markets and financial intermediation, money balances (currency plus deposits) presents the best option for poor entrepreneurs to first accumulate their monies before they can undertake capital projects (Moore, 2010). Hence, even if the financial institutions do not provide credit to the poor, these firms are still useful because they offer gainful financial opportunities for savings. Hence, McKinnon underscores money balances (currency plus deposits) over credit through which the benefits of financial intermediation reaches the poor (Akhter & Daly, 2009). In contrast, credit provided to the private sector is also recognized as the principal channel for financial intermediation, where reform policies are directed toward promoting the availability and accessibility of credit to the poor. This study thus tests the type of financial development that is effective in reducing poverty.

Further, while the results for natural resource-poverty nexus has been inconclusive, the dynamics of the indirect relationship should also be examined. For instance, we postulate that strong supporting domestic institutions, including the development of the financial sector as

well as a well-functioning political institutions may influence the impact of natural resource on poverty. First, the poverty dynamics differs from one country or region to another considering its level of financial sector development. Thus, the level of financial sector development can influence how natural resource in that country may reduce poverty. Again, by setting national strategies that include building strong institutions, African governments can capitalise on their natural resource wealth to benefit the poor. This may include legislation that are transparent with regards to concessions and licences granted. These relationships have received little attention in literature. This study thus, interacts natural resource rent with financial development and with institutional quality to examine how strong institutions can help the efficient and effective use of natural resource rents to reduce poverty.

Furthermore, the literature on poverty has been limited due to the difficulty in measuring poverty/welfare (Gohuo & Sumoure, 2012). Two common indicators namely, per capita GDP and poverty incidence have been widely used. Per capita GDP is widely used and is available for all countries on an annual basis. However, it only measures one dimension of development, that is, the income measure. On the contrary, poverty incidence is a good measure of overall well-being. However, as indicated by Gohuo and Sumoure (2012), data on poverty incidence are not available for all countries and where they are even available, it is not used by all countries as a welfare indicator. Over the last three decades, the United Nations Development Program's (UNDP) Human Development Index (HDI) has become (almost) the universally accepted measure of human development (Gohuo & Sumoure, 2012). At present, HDI is readily available for all countries. The HDI captures various aspects of human development including income, health and education. Hence, this is a comprehensive measure of human development. Nonetheless, there are few researchers who have used HDI to analyse correlates of poverty. The few for instance include that of Sharma and Gani (2004) who studied FDI's

direct impact on welfare focusing on Asia or on low- and middle-income countries and the recent study of Gohuo and Sumoure (2012) who studied how FDI can reduce poverty in Africa. Thus, in this study we use welfare and poverty interchangeably, since HDI captures different levels of human development and can be seen as a welfare or poverty indicator.

Again, while the previous studies have either addressed one or two of these variables (remittance, financial development, and natural resources) on poverty, most of these have been done either for developing countries or for Africa as a whole without taking into consideration the regional differences in these relationships. For instance, the North African (NA) region has higher levels of human development than the Sub-Saharan (SSA) region (UNDP, 2012). This may influence the migration pattern of the two regions as well as influence the amount remitted. Also, while the resource abundance in each region differs, the level and the dynamics of how their financial sector operates may differ. In this regard, this study tests the regional differences in the remittance-poverty, financial development-poverty and natural resource-poverty relationships.

This study uses the HDI in capturing levels of human development as a welfare or poverty-reduction indicator to revisit the response of poverty rate to increases in international remittance inflows, financial development, and natural resource wealth in Africa.

1.3 Purpose of Study

The purpose of the study is to improve understanding of the role of remittances, financial development and natural resources in poverty reduction and to help enhance policy direction with respect to Poverty Reduction Strategies in African countries.

1.4 Objectives of Study

The objectives of the study are:

- i. To explore the roles that remittances, financial development and natural resource wealth can play in reducing poverty in Africa.
- ii. To explore the indirect transmission channels that remittances, financial development and natural resources can effectively reduce poverty.
- iii. To explore regional differences in the relationship between remittances, financial development and natural resource and poverty reduction in Africa.

1.5 Research Questions

Following from the research objectives, the study also seeks to address the following research questions:

- i. What roles do remittances, financial development and natural resource wealth play in reducing poverty in Africa?
- ii. Does financial development play an intermediary role between the remittance-poverty and natural resource-poverty nexus?
- iii. Does institutions play an intermediary role between the remittance-poverty and natural resource-poverty nexus?
- iv. Are there any regional differences in these relationships?

1.6 Significance of the Study

The study is significant as first it adds to the body of empirical literature on poverty reduction strategies in Africa by providing a robust analysis that incorporates a comprehensive measure

of poverty/welfare (HDI); second it explains the dynamic roles of remittances, financial development and natural resources in reducing poverty levels from an African perspective.

Thus our study offers a comprehensive effort on this topic for Africa. Conceptually, the study allows for testing the nature of the relationship between the correlates and poverty reduction in Africa. Methodologically, it has numerous contributions to the poverty literature by (i) using a comprehensive measure of poverty, financial development and natural resources; (ii) utilizing data over the period of 1990–2012 avoiding the issue of low number of observations; (iii) employing a dynamic model that allows for the lag of the dependent variable to be used and to cater for possible endogeneity problems. As noted earlier, the issue of poverty has been top of development agenda for quite a long time. This study thus becomes important as to add to existing literature to provide direction to governments, development partners and policy makers in their decision making.

1.7 Scope and Limitations of the Study

The scope of the research is limited to 54 African countries. While, countries or regions may differ, these limitations notwithstanding would have a minimal impact on the findings because all of the African countries are used and most share similar characteristics hence the results may serve as a basis for generalization for African countries.

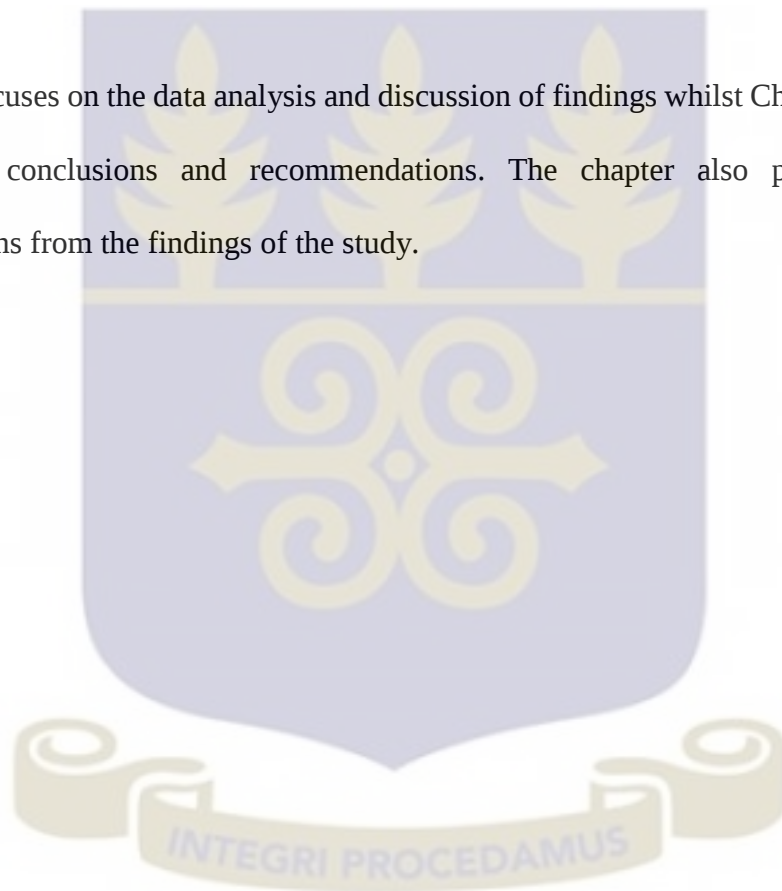
1.8 Organization of the Study

This study is divided into five chapters. In the first chapter, a background of the study followed by the problem area discussion, research objectives, research questions, and research

limitations is presented. In chapter two, the literature review of previous studies and theories is presented in order to get a deeper insight into the subject matter.

Chapter three deals with the research methodology adopted for the study. This covers the research design, model specifications and validity tests. The chapter ends by addressing the estimation technique and specification tests.

Chapter four focuses on the data analysis and discussion of findings whilst Chapter five covers the summary, conclusions and recommendations. The chapter also provides various recommendations from the findings of the study.



CHAPTER TWO

REVIEW OF LITERATURE

2.1 Introduction

Indeed, over the last two decades, most African countries have undertaken major economic reforms solely or with development assistance from development partners like the World Bank and the IMF (Elhiraika, 2005). In pursuant to this, poverty reduction has been at the centre stage of discussion with consensus by all countries of the United Nations to end extreme poverty. While governments increase their efforts in improving their economic conditions, several factors have been seen to affect poverty. Under this section, various theoretical and empirical reviews of correlates of poverty are presented with special emphasis on remittances, financial development and natural resource wealth. Emphasis is also placed on the African continent while drawing inferences from other continents or countries to complement the study. These reviews provide a basis for the research gap and the empirical models used to estimate the correlates of poverty in Africa.

2.2 Background and Theoretical Review

This section discusses the background and theoretical conceptualisation of poverty, remittances, financial development and natural resource wealth. Conceptual definitions and measurement of each of these variables are reviewed.

2.2.1 Defining Poverty

Various definitions of poverty have been espoused in literature influenced by different disciplines. As indicated by Grusky and Kanbur (2006), the central definition of poverty has

been in monetary terms, using levels of income or consumption to measure poverty and defining the poor by a headcount of those who fall below a given income/consumption level or 'poverty line' (Lipton & Ravallion, 1993). On the contrary, new definitions have been espoused complementing the economic definition. For instance, World Bank (2000) defines poverty as: "a pronounced deprivation in well-being". They define welfare as an individual's possession of income, nutrition, education, health, housing, assets, and certain rights in a society such as freedom of expression. This indicates that poverty goes beyond just the income measure. Indeed, it involves the state of the individual in terms of his access to certain basic needs like food, shelter, good health care, education and an enabling environment that ensures the freedom of a person to have a decent life.

As put by Anyanwu (2013), poverty is complex, multidimensional, and universal socio-economic problem. In his earlier study, he orders poverty under five (5) classifications particularly in connection to the African framework as: (i) those family units or people beneath the poverty line and whose incomes are inadequate to accommodate fundamental needs; (ii) families or people lacking access to fundamental services, political contacts and different types of support, including the urban squatters and "street" children; (iii) individuals in secluded rural communities who need vital infrastructural framework like essential services; (iv) female-headed family units (particularly pregnant and lactating mothers and infants) whose nutritional needs are not being met sufficiently; (v) persons who have lost their occupations and those who are unable to find jobs (such as school leavers and tertiary institution graduates); and (vi) ethnic minorities who are marginalized, denied and persecuted economically, socially, culturally and politically (Anyanwu, 1997).

The acceptance of the multidimensional nature of poverty is shown in the common use of the Human Development Index (HDI), which measures three dimensions of human development, namely, (i) life expectancy, (ii) educational attainment and (iii) standard of living, measured by income in terms of its purchasing power parity (UNDP, 2006).

2.2.2 Measuring Poverty

Various measures have been indicated to measure the level of welfare in an economy. There are several measures espoused in literature to access welfare. These include GDP per capita and poverty incidence. GDP per capita only captures the economic dimension of welfare. The multidimensional nature of poverty makes this measure problematic (Gohuo & Samoure, 2012). Another measure is the poverty incidence indicators provided by the World Bank. This presents a good alternative measure to poverty. It compares various dimensions of an individual's living conditions including health, education, access to basic services, nutrition, and so forth to a certain threshold needed for a decent standard of living (Gohuo & Samoure, 2012). Nonetheless, there is limited data on poverty incidence as it is not recorded annually. In this study, we use the Human Development Index (HDI). We proceed to discuss the HDI and some of the measures of poverty identified in literature.

2.2.2.1 Human Development Index (HDI)

Our measure of poverty is the Human Development Index (HDI). The UNDP (2014) defines HDI as a composite index which measures average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living.

According to the UNDP (2014), a new way of measuring development was introduced in the Human Development Report of the UN. This measure captures development by combining

indicators of life expectancy, educational attainment and income into a composite human development index, the HDI. Indeed, the HDI is intuitive in providing a basis for assessing social and economic development. As indicated by UNDP (2014), the HDI sets a minimum and a maximum values for each dimension, called goalposts, and then shows where each country stands in relation to these goalposts, expressed as a value between 0 and 1. The various components as explained by the UNDP are explained below:

Education

As indicated by the UNDP (2014) the education component of the HDI is measured by: “mean of years of schooling for adults aged 25 years and expected years of schooling for children of school entering age. The ***Mean years of schooling*** is estimated based on educational attainment data from censuses and surveys available in the UNESCO Institute for Statistics database and Barro and Lee (2010) methodology”.

Life Expectancy

The UNDP (2014) show that, the life expectancy component which is the health component of the index is measured by: “the number of years a new-born infant could expect to live if prevailing patterns of age-specific mortality rates at the time of birth stay the same throughout the infant’s life. The life expectancy at birth component of the HDI is calculated using a minimum value of 20 years and maximum value of 83.57 years. This is the observed maximum value of the indicators from the countries in the time series, 1980–2012. Thus, the longevity component for a country where life expectancy birth is 55 years would be 0.551”.

Income

The UNDP (2014) defines the income component as the: “aggregate income of an economy generated by its production and its ownership of factors of production, less the incomes paid for the use of factors of production owned by the rest of the world, converted to international dollars using PPP rates, divided by midyear population. For the wealth component, the goalpost for minimum income is \$100 (PPP) and the maximum is \$87,478 (PPP), estimated for Qatar in 2012. The decent standard of living component is measured by GNI per capita (PPP\$) instead of GDP per capita (PPP\$)”. They indicate that the HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI. The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean.

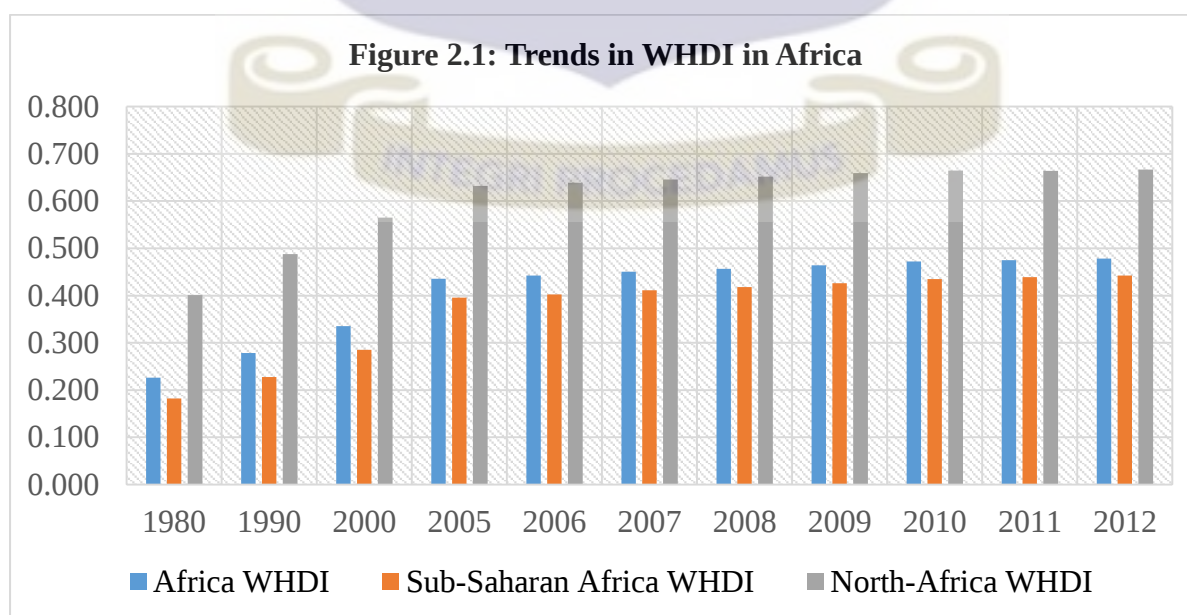
The HDI facilitates instructive comparisons of the experiences within and between different countries. We therefore use HDI as our comprehensive measure of poverty. Below, we discuss the trends in HDI for Africa over the years.

2.2.2.1.1 African Regional Trends in HDI

Here, the study provides trends in the Human Development Index (HDI) in the African regions. Because the HDI data provided by the UNDP does not provide aggregate data for the various regions or global blocs, the study only provides the trend in HDI for the African region. In so doing, the aggregates are obtained using the population weighted HDI (WHDI) for each country. Thus, we use the population of the various countries to obtain each country’s weight out of the regional group (Africa-51 countries, Sub-Saharan Africa-46 countries, and North Africa-5 countries) to obtain the region’s WHDI. Thus we followed the simple formula below:

$$WHDI_{it} = \sum_{j=1}^n W_{ij} HDI_{jt}$$

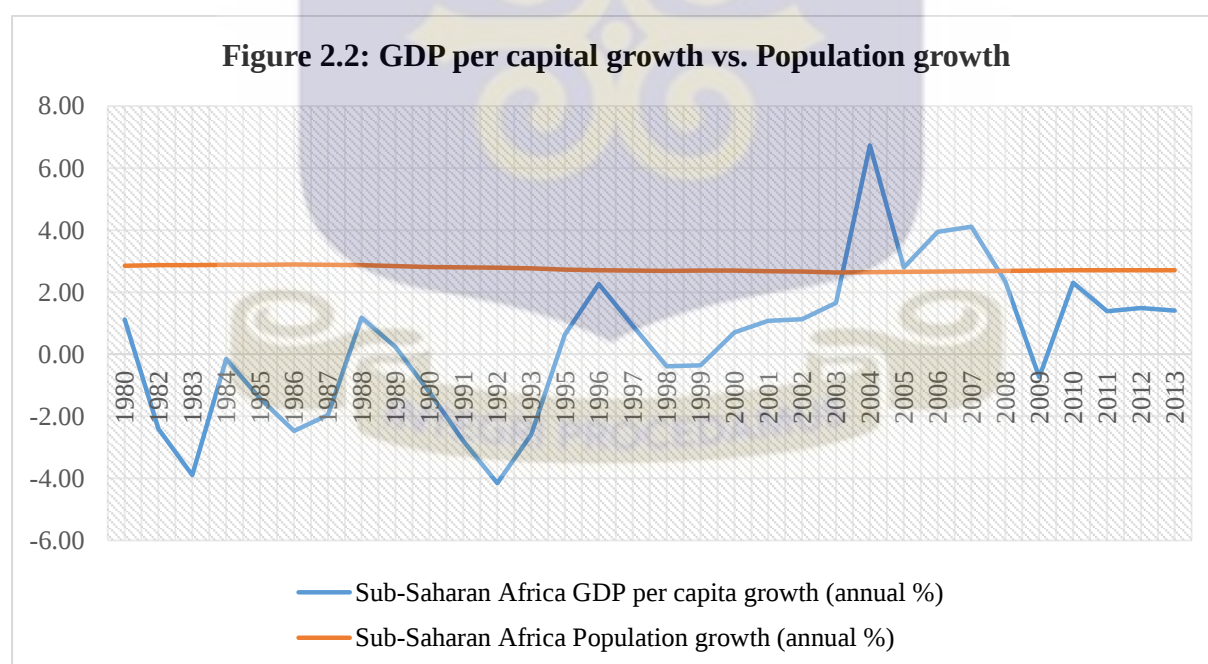
$WHDI_{it}$ is the regional-constructed HDI as per world bank classification; W_{ij} is the population weights of country j included in region i ; n is the total number of countries included in the region; and HDI_{jt} is the HDI value for country j included in the region at period t . Figure 2.1 shows that the North African region has higher levels of human development in the whole of Africa. This trend increased sharply between the 1980 and 2005 from as low as 0.401 in 1980 to end at 0.632 by 2005. This achievement in human development stabilised from 2005 to 2010 till it declined slightly from 0.665 in 2010 to 0.664 in 2011 and picked up to end at 0.667 in 2012. The Sub-Saharan African region followed a similar trend achieving some improvement in human development from as low as 0.182 in 1980 to 0.395 in 2005 after which it stabilised with marginal increases to end at 0.443 in 2010. Generally, Africa has low human development not even making the medium human development level at 0.50 since 1980 till 2012. The region as of 2012 has a weighted HDI value of 0.478.



Source: Based on data obtained from the Human Development Report of the UNDP.

While these evidence have shown higher poverty levels and lower levels of human development, it is interesting to and revealing that despite the achievements in growth in the African region, poverty still remains an issue. As can be seen in Figure 2.2, the experience of the African countries after the turn of the millennium has been a vast shift from the 1980s and early 1990s, when economic growth was bleak and an impoverished population. Thus as indicated earlier, despite the growth turnaround, more people still live on less than \$1.25 a day in Sub-Saharan Africa.

One reason is that, the population of the SSA region has also continued to expand rapidly (by an average of 2.75 percent a year), resulting in a more modest expansion of its GDP when expressed in per capita terms (by about 1.9 compared to 4.6 percent). This can be indicated in Figure 2.2.



Source: World Bank, World Development Indicators.

We then explain other measures of poverty specifically the FGT measures of poverty.

2.2.2.2 Poverty measures of FGT class

The so-called FGT class (Foster, Greer, and Thorbecke 1984) are three poverty measures widely used by the World Bank and mostly used in studies on poverty or welfare. The study provides below a brief definition for these most commonly used poverty measures as provided by Foster, Greer, and Thorbecke (1984). First is the headcount poverty which Foster et al. (1984) defines as the share of the population which is poor, i.e. the proportion of the population for whom consumption or income is less than the poverty line. They explain poverty gap to represent the depth of poverty. This is the mean distance separating the population from the poverty line, with the non-poor being given a distance of zero. The poverty gap is a measure of the poverty deficit of the entire population, where the notion of poverty deficit captures the resources that would be needed to lift all the poor out of poverty through perfectly targeted cash transfers. The squared poverty gap is often described as a measure of the severity of poverty. While the poverty gap takes into account the distance separating the poor from the poverty line, the squared poverty gap takes the square of that distance into account. When using the squared poverty gap, the poverty gap is weighted by itself, so as to give more weight to the very poor. Said differently, the squared poverty gap takes into account the inequality among the poor.

2.2.3 Remittances

International remittances refer to the money and goods that are transmitted to households by migrant workers working outside of their origin countries. Nyamongo, Misati, Kipyegon and Ndirangu (2012) explains that remittances constitute cross-border incomes that migrants send to their home countries. According to the World Bank (2011), migrant remittances include: workers' remittances, compensation of employees, and migrants' transfers. IMF (2010a)

defines workers' remittances as the current private transfers sent by migrant workers who are residents of the host country to recipients in his/her home country. According to the IMF (2010a), a migrant is considered a resident of the host country if he lives there for one or more years regardless of their immigration status. On the other hand, the entire income of a migrant who has lived in the host country for less than a year makes up their compensation (World Bank, 2011). The Migrants' transfer component involves contra-entries to the stream of products and changes in financial items that emerge from people's change of residents from one nation to another moving all aggregated savings when a migrant returns permanently to the home country (World Bank, 2011).

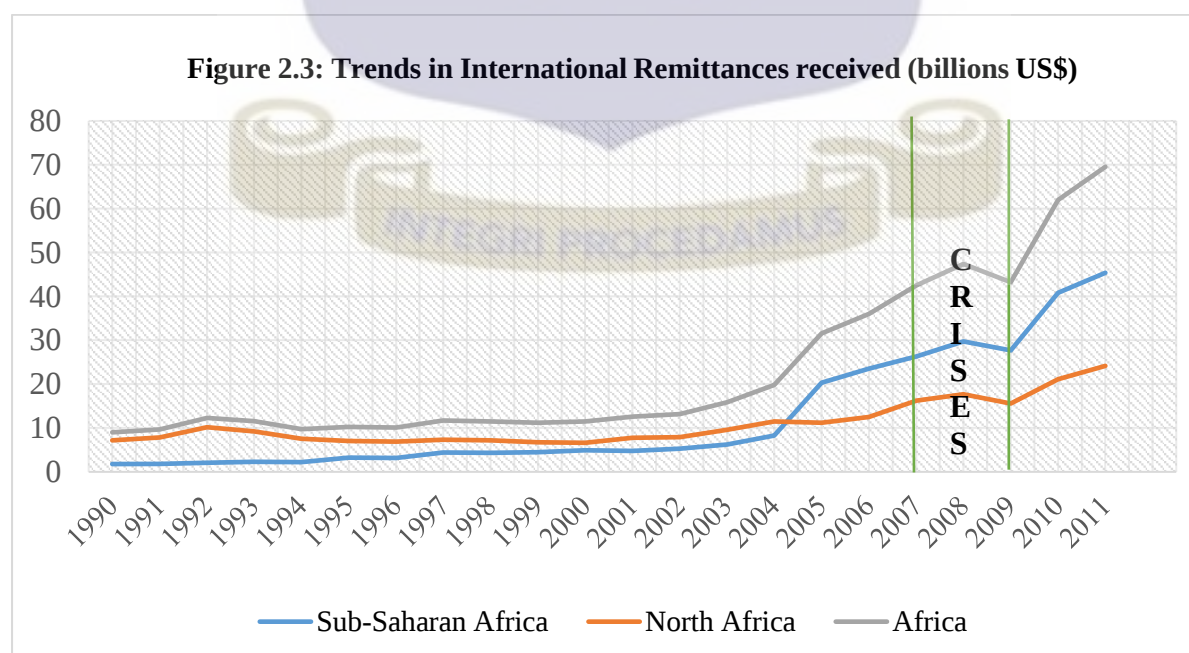
The World Bank (2011) indicate that remittance transfers are observed to be channelled through either official or unofficial channels. Nyamongo et al. (2012) indicate that, official channels involve sending monies through the formal financial institutions like the banking system and money-transfer organisations while the unofficial channels are those through carries like family members, friends and the like who take monies and other in-kind items on behalf of migrants to be sent to their home country. The authors further posit that, the migrant transfers also include funds that are remitted through unlicensed money transfer operators using traditional networks. It is estimated that more than 50 percent of the remittances to Sub-Saharan Africa is through the informal channels (World Bank, 2011). Along these lines, this represents a challenge of having a precise estimate of remittance flow to the region. Additional evidence demonstrates that regardless of the possibility that all remittances are directed through the formal channels there are still issues (Nyamongo *et al.*, 2012). We proceed to discuss trends of remittance inflows to Africa over the years.

2.2.3.1 Trends in remittances

At the start of the millennium remittance transfers represented one of the key issues in economic development. Below, the study presents the trend in remittances received in Africa and the share of remittances of GDP over the period of 1990 to 2012.

Remittances received in Africa, 1990 – 2011 (US\$ billions)

As recorded by World Bank (2009), remittances to developing countries have grown radically over the years from U.S. \$3.3 billion in 1975 to U.S. \$289.4 billion in 2007. Ratha (2004) observe that official international remittances flows to developing countries twice as much as the level of official aid-related flows to these countries. As shown in Figure 2.3, Sub-Saharan Africa recorded an estimated \$8.27 billion in 2004 representing 4.16% of GDP. This rose to \$26.29 billion dollars by 2007 even though it represented just 4.22% of GDP. Indeed, remittance inflows to North Africa dominated those to sub-Saharan Africa on an annual basis from 1990s through to 2004 when it recorded an estimated \$11.50 billion in 2004.

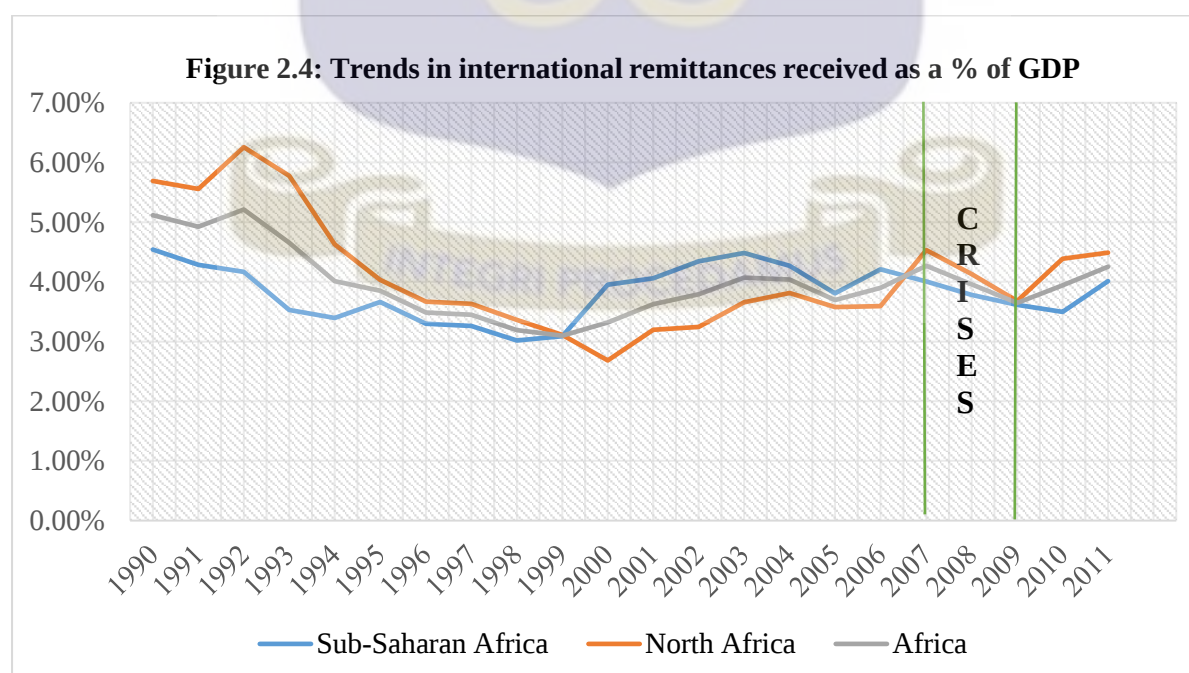


Source: World Bank, World Development Indicators.

Ratha and Mohapatra (2013) even postulate that, if we should incorporate the unrecorded remittance flows, then the real size of remittances would even exceed the level of aid-flows to developing countries even further. Ratha and Mohapatra (2013) further show that remittances have remained resilient even in times of global financial crises exceeding other private capital flows. As we observe in Figure 2.3, remittance even further increased in the crises period from 2007 through 2008 and declined marginally in 2009 but picked up again after. These trends further show the importance of remittance to the continent.

Remittances received in Africa, 1990 – 2011 (% of GDP)

After looking at the trends of remittance in dollar terms, we proceed to explore how these inflows fare in terms of the general performance of the economies in the region. This gives as an understanding of which region is more dependent on remittances and how the continent as a whole also depends on remittances. In Figure 2.4 below we show the share of remittances of GDP in Africa.



Source: World Bank, World Development Indicators.

Figure 2.4 shows interesting trends. It can be seen that just before the turn of the millennium, the NA region was more dependent on remittances than their SSA counterparts until the trend shifted. This shift occurred just in 1999 when in the NA region remittances formed some 3.11% of GDP while the SSA recorded a share of 3.10% of GDP. In the year 2000, the SSA region recorded a 3.95% share of remittances of GDP higher than that of the NA region which recorded 2.68% remittance share of GDP. This trend remained same till the start of the financial crises in 2007 when the NA region took over in terms of dependence on remittance flows to Africa. As off 2011 the continent had a 4.25% share of GDP as remittances. The NA region is more dependent on remittance than the SSA region by 0.24%.

Again, while remittances in dollar terms remained resilient over the period even in financial crises, when expressed as a share of GDP it decreased during this period. While remittance formed 3.96% of GDP in 2007 by 2009 it reduced marginally to 3.65%. North African region rather experienced more decline of 0.62% in remittance share of GDP reducing from 4.27% in 2007 to 3.65% in 2009 compared to the 0.13% decrease for the Sub-Saharan region even though the NA region still has higher share of remittances of GDP. However, after 2009 the share of remittance of GDP for the whole Africa and the region showed a sharp increase.

2.2.4 The concept of financial development

Financial intermediation is an important factor in economic development process and consequently poverty reduction as it has implication for effective mobilisation of investible resources. A well-functioning financial sector is expected to attract idle funds for financing economic growth and development projects. Schwab (2011) in the global financial development report, defines financial development as all the factors that prompt successful financial intermediation and markets, and also profound and wide access to capital and

monetary administrations. This definition along these lines compasses the foundational backings of a money related framework, including the institutional and business situations; the monetary middle people and markets through which effective danger expansion and capital allotment happen; and the consequences of this financial intermediation process, which incorporate the accessibility of, and access to capital (Schwab, 2011). This definition indeed encompasses the numerous measures that have been espoused in literature. We proceed to discuss some measures of financial development.

2.2.4.1 Measures of financial development

Several indicators have been identified to measure financial development. As indicated by Krishnan (2011), the database provided by the World Bank on financial development and structure across countries is the most widely used databases. These are mainly the Global Financial Development Database and the World Development Indicators. As Krishnan (2011) observes, the Global Financial Development Database (GFDD) provides an extensive dataset of financial system characteristics while the World Development indicators database has a select few of financial system indicators. Again, the European Central Bank also attempts to measure financial development on the basis of data and procedure provided by Dorrucchi, Meyer-Cirkel and Santabárbara (2009) to construct composite indexes that measure domestic financial development. Another measure of financial development is that of the World Economic Forum's, the Financial Development Index. In 2009, The World Economic Forum released its first annual Financial Development Report (FDR). The report measures and examinations the components empowering the advancement of financial systems in various economies around the world. It intends to give an extensive intends to nations to benchmark different parts of their financial systems and build up needs for improvement (Dorrucchi et al., 2009).

2.2.4.2 Indicators used in literature

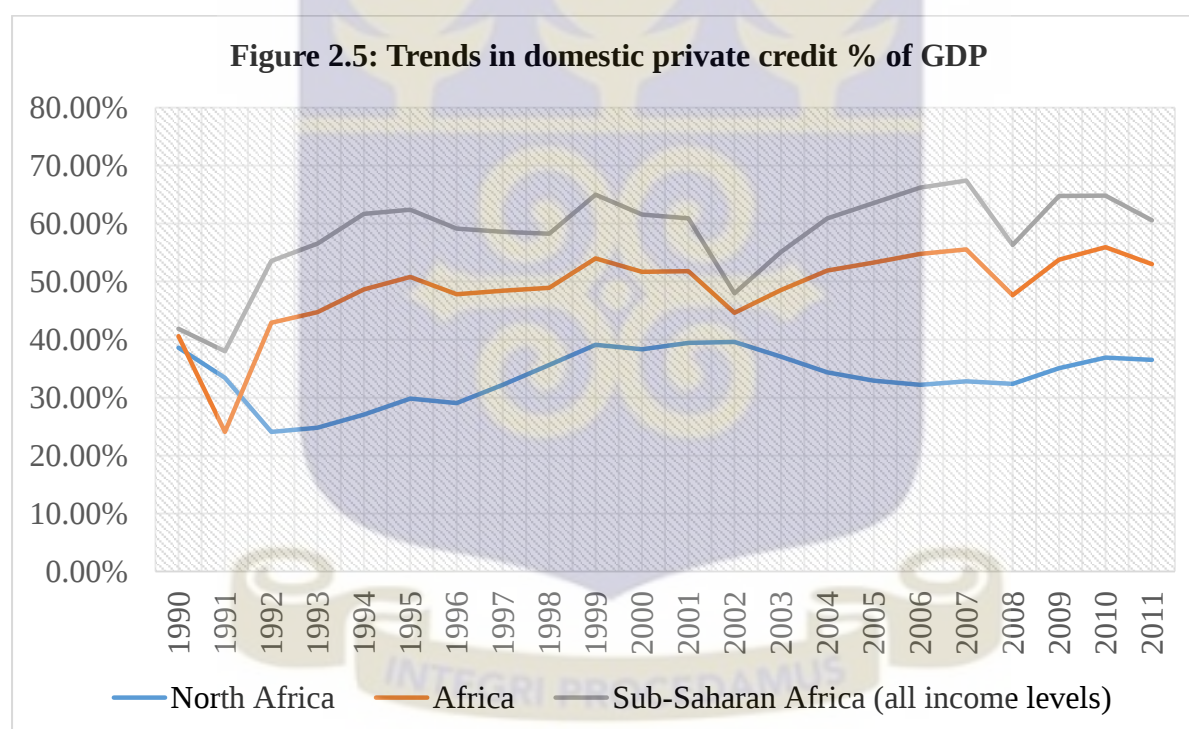
This section reviews some of the indicators of financial development that have been used in literature. Most of these have been in the World Development Indicators and the Global Financial Development Database. The two (2) most widely used measure of financial development in cross-country studies identified were the domestic credit to the private sector as a ratio of GDP and the Money and quasi money (M2) as a ratio of GDP. We discuss these below.

Domestic credit to private sector by financial intermediaries as a ratio of GDP

Domestic credit to private sector are the financial products and services provided to the private sector by financial intermediaries (World Bank, 2014). These resources include, loans, trade financing, and receivables that put claims for requirement and purchases of non-equity securities.

Most empirical studies have used the private credit issued by domestic money bank and other financial institutions to GDP as a measure of financial development (Beck, Levine & Loayza, 2000; Beck *et al.*, 2003; Acemoglu, Johnson & Robinson, 2005; Bhattacharyya & Hodler, 2014). As indicated by Bhattacharyya and Hodler (2014), this ratio measures the level of activity or financial intermediation in the economy suggesting that a country is financially underdeveloped if there is limited credit available for the private sector in relations to the size of its economy. Below shows the trend of the domestic credit to private sector as a percentage of GDP over 1990 to 2012 to Africa.

From Figure 2.5, the average percentage of domestic credit provided to the private sector of GDP has increased tremendously in the region. The Sub-Saharan African countries have been on the lead with an estimated 41.83% of domestic credit provided to the private sector by financial intermediaries in 1990. This was a little above the 40.60% of the African continent as a whole and more than that of the North Africa region (38.60%). As of 2011, the African region improved by 12.41% to end at 53.01% in 2011. The Sub-Saharan region was the most contributor improving 18.74% to end at 60.57% on domestic credit to the private sector as a percentage of GDP.



Source: World Bank, World Development Indicators.

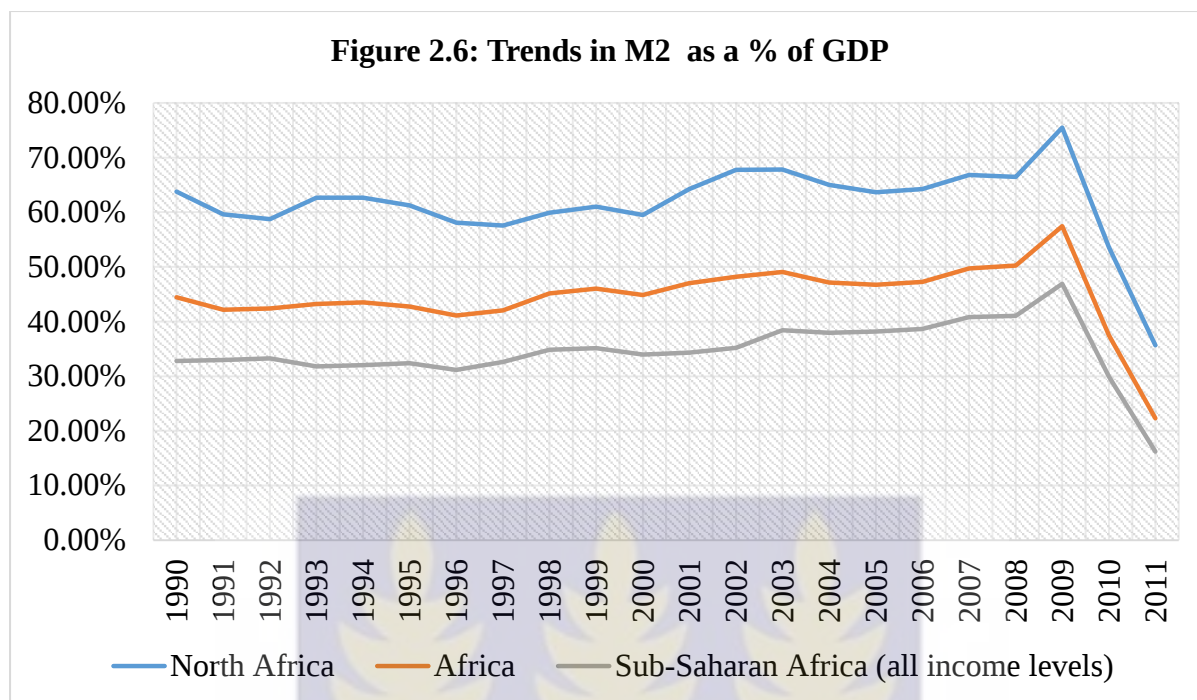
The North African region has rather saw a decline in intermediation level by 2.12% points. These trends suggest that the North Africa countries seem to have low financial intermediation levels as measured by domestic credit to private sector. This could be attributed to the Islamic banking nature of the region as most of these regions are Islamic countries where no interest is

charged on loans. As indicated earlier, the element of interest charges serves as the main motivation for financial intermediation hence explaining the higher levels of financial intermediation in the Sub-Saharan region. This could also be attributed to the fact that, the North Africa region has higher GDP levels and as such the level of income of individuals may be high leading to lower credit demanded by the private sector as a proportion of GDP.

M2 to GDP

As indicated by the World Bank (2014), M2, Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This is expressed as a percentage of GDP. Studies (King & Levine, 1993; Calderon & Liu, 2003; Akhter & Daly, 2009; Odhiambo, 2010) show that M2 is the most widely used measure of financial development. A higher ratio of M2 to GDP shows a larger financial sector and bigger financial intermediation. Below shows the trend of the average M2 to GDP ratio over 1990 to 2012 to Africa.

Unlike as seen in Figure 2.5 earlier, Figure 2.6 shows a different trend. As indicated earlier, while the North Africa region had lower levels of domestic credit to the private sector, the monetization level of money supply and demand deposits in this region is huge. The ratio of M2 to GDP in the North Africa region was estimated at 63.80% far above that of the Sub-Saharan region of 32.81% in 1990. The Sub-Saharan region has a monetization of 16.22% of the GDP as of 2011 below the 35.68% ratio estimated in the North African region. The ratio fell drastically from 2010 to 2011 for all the regions.



Source: World Bank, *World Development Indicators*.

2.2.4.3 Other empirical measures of financial development

Other measures of financial development have also been espoused in literature. These variables include measures of banking sector development, stock market development, bond market development and financial intermediaries in general. The banking sector development has widely been measured by either the bank deposits as a percentage of GDP or domestic credit to the private sector provided by banks as a percentage of GDP. Stock market development has been widely measured by the stock market capitalisation of the various exchanges as well as the value of volumes traded.

Neusser (1998) used the pension funds, loan and saving association, investment banks, life and casualty insurance and banks to measure financial development. Rousseau and Wachtel (1998) used the assets of commercial banks, both the assets of commercial banks and saving institutions and an aggregation of assets of commercial banks, savings institutions, insurance

companies, and pension funds. Antzoulatos, Tsoumas, and Kyriazis (2008) in constructing a financial development index used four main indicators namely development of the banking sector, development of financial institutions in general, development of the stock market and bond market development. The authors used deposit money bank assets to GDP, overhead costs, net interest margin, and credit issued to the private sector by domestic banks and other financial institutions to measure banking sector development. They use life and non-life insurance premiums to measure development of financial institutions. They measure stock market development by stock market total value traded to GDP, the stock market capitalization to GDP, and then with turnover ratio of stock market. The indicators for the bond market development was made up of private and public bond market capitalization to GDP.

This study uses M2 as a ratio of GDP and total credit to the private sector as a ratio of GDP to assess which channel of financial development is better in reducing poverty. These indicators capture different aspects of financial development. This is mainly to assess which channel of financial development is effective in improving welfare. We proceed to discuss some theories of financial development-poverty nexus.

2.2.4.4 Theories of financial development -poverty reduction nexus

Finance is at the core of the development process. Studies including that of Beck et al. (2004) indicate that even though other studies confirm the positive impact of financial development on economic growth, the impact of financial development and its transmission mechanism on poverty remains ambiguous (Dollar & Kraay, 2002). Dollar and Kraay (2002) finds that financial development either leads to increased income inequality or can help reduce poverty through the economic growth channel. In this regard, Beck et al. (2004) indicate that it is

inconclusive whether financial development benefits the whole population or not. They assert that financial development can primarily benefit the rich, or can help the poor.

Various theories have been espoused as to the financial development-poverty nexus. First, studies (Stiglitz, 1998; Jalilian & Kirkpatrick, 2002) observe that, by addressing the market failures of information asymmetry and higher fixed costs of lending to small borrowers, the development of the financial sector can present opportunities for the poor to benefit. Galor and Zeira (1993) observe that these financial market imperfections may hinder the smooth flow of finance to the poor. The authors believe this may be so particularly because the poor normally lack collateral, credit histories, and connections. This leads to the inefficient allocation of credit further increasing income inequality (Beck *et al.*, 2004).

Second, the finance-poverty nexus could be explained by the financial resources that accompanies the development of the financial sector. These include providing access to the poor for financial products and services such as loans and insurance related services. It also includes providing the opportunity to the poor to save to later draw down their savings or to borrow money to start their small businesses, which eventually leads to wider access to financial services (World Bank, 2001; Jalilian and Kirkpatrick, 2002; Department for International Development (DFID), 2004). This would ensure more employment and increased incomes hence leading to poverty reduction.

The third theory is the trickle-down effect. Literature indicate that financial development may trickle down to the poor through the economic growth channel. This is the inferred positive relationship between financial development and economic growth. The trickle-down theory has been widely supported by studies such as Ravallion & Datt (2002), Mellor (1999), Dollar

& Kraay (2002) and Fan, Hazell & Thorat (2000), among others. However, this theory has received numerous criticisms in literature. For instance, Fishlow (1995), in studying the relationship between inequality, poverty and growth, found no support for this theory. The author indicates that due to the high inequality in Latin America, economic growth could not reduce poverty. Similarly, Basu and Mallick (2007) tested the trickle-down effect in rural India but found no evidence to support this theory. Odhiambo (2010) observe that, numerous discourse suggest that economic development resulting from increased growth does not necessarily translate to reducing poverty. Instead, as indicated by Todaro (1997), growth processes typically trickle up to the middle-class and the very rich. Holden and Prokopenko (2001) indeed puts it well by indicating that the direct nexus between financial development and poverty alleviation results from available financial instruments, services and institutions that are accessible to the poor households.

On the other hand, there have been other theories that question whether financial development can actually reduce poverty. Studies like those of Haber, Armando & Noel (2003) and Bourguignon & Verdier (2000) suggest that the poor mostly rely on informal finance for capital basically from their family members, hence, improvements in the formal financial sector largely benefit the rich. Along these lines, Greenwood and Jovanovic (1990) further assert that in the early stages of development, just the rich get to access and benefit from financial markets implying that financial development increases income inequality. They conjecture that at increasing levels of economic development, development of the financial sector only tend to help an increasing proportion of society.

Furthermore, some researchers including Bourguignon (2001) suggest models that infer that if financial development reduces income inequality, aggregate growth could slow and hence

increase poverty. In particular, the authors indicate that if the rich save more than the poor while financial development reduces income inequality, aggregate savings could reduce and hence reduce growth with adverse implications on poverty (Bourguignon, 2001). Greenwood and Jovanovic (1990) argue the initial start-up costs of getting involved in the financial sector like screening and risk pooling are usually exorbitant for the poor people to incur. However, studies such as those of Rajan & Zingales (2003), Honohan (2004), Li, Squire & Zou (1998) and Beck et al. (2004) strongly reject the hypothesis of Greenwood and Jovanovic (1990). In particular, Li et al. (1998) finds that financial depth significantly reduces income inequality in addition to raising the average income of the lower 80% of the population. These authors conclude that development of the financial sector rather eliminates credit constraints for the poor and thereby increases their desire to invest in activities like schooling and healthcare for children.

McKinnon (1973) supports the financial development-poverty reduction nexus through the concept of the 'conduit effect'. As indicated by Akhter and Daly (2009), this concept is actually rooted in McKinnon's complementary hypothesis. The complementary hypothesis states that mostly in developing economies where there are weak financial markets and financial intermediation, money and real capital assets become better complements. Hence, people have to accumulate their monies or savings before they can invest in projects. This situation normally happens (money and capital become complementary) when the increasing real return on holding money leads to a concomitant increase in self-financed investment over a significant range of investment opportunities (Moore, 2010). Hence, the increased desirability of holding cash balances (for the poor) reduces the opportunity cost of saving internally for the eventual purchase of capital goods from outside the firm-household (McKinnon, 1973). The financial 'conduit' for capital accumulation is thereby enlarged. Akhter and Daly (2009) explain that

even if the financial institutions do not provide credit to the poor, these firms are still useful because they offer gainful financial opportunities for savings. Hence, McKinnon underscores money balances (currency plus deposits) over credit through which the benefits of financial intermediation reaches the poor (Akhter & Daly, 2009).

Studies that investigated the McKinnon's complementary hypothesis include Moore (2010), Fry (1978), and Kar & Pentecost (2001). These studies empirically investigated McKinnon's complementary hypothesis and found that the demand for real money balances depends positively on real income, the real rate of interest on bank deposits, and the real return on capital. Guillaumont and Kpodar (2005) test the McKinnon's complementary hypothesis to justify using real money balances (currency plus deposits) as the channel through which financial intermediation impacts on growth and poverty. They find that money balances is better in the transmission effect of financial intermediation on poverty alleviation compared to credit. This study empirically tests the financial development-poverty nexus using both M2 to GDP and private credit to GDP to test if this hypothesis would also hold for the African continent. Thus, the study assesses whether real money balances perform better as the channel through which financial development can reduce poverty. Hence, testing these theories empirically in this study could provide evidence on the impact of financial development on poverty. Specifically, it shows which channel of financial development is better in reducing poverty to help distinguish among competing theoretical predictions.

2.2.5 Natural resources

It is imperative to consider the development paths for countries that are mostly dependent on natural resources as the primary source of wealth creation. Van der Ploeg, (2011) defines resource rent as economic profits accruing after paying out factors of production and taking

into account the opportunity costs of production – essentially above marginal costs. While these returns from the resources can be very high, the dynamics of how these gains can be efficiently used to improve growth and mitigate poverty may vary across countries and time (van der Ploeg, 2011). Dobbs, Oppenheim, Kendall, Thompson, Bratt and van der Marel (2013) defines resource-driven countries using three criteria: (1) resources are more than 20 percent of exports; (2) resources are more than 20 percent of fiscal revenue; or (3) resource rents are more than 10 percent of GDP. We discuss the various measures of natural resource wealth as used in literature.

2.2.5.1 Measuring natural resource wealth

Most empirical studies have examined natural resource in different contexts using different measures. Most of these have used data provided in the World Development Indicators. Onyeiwu and Shrestha (2004) used fuel exports to measure natural resource availability. Mohammed and Sidiropoulos (2010) also assessed natural resources from fuel exports. Using a dummy variable, Anyanwu (2011) assessed natural resource from oil exporters and non-oil exporters. Asiedu (2013) used share of fuel in total exports as natural resource measure. The above studies thus measured natural resources as export drive. Other studies have also sought to measure natural resources as a contribution to GDP. This measure simply shows how natural resource is important to the growth (GDP) of the host country. These have normally been the contribution of the rents from natural resources as a share of GDP. Poelhekke and Van der Ploeg (2010) and Asiedu (2013) used oil rents as a share of GDP to represent natural resource endowment.

Our measure of natural resource is broader as compared to previous studies. In terms of contribution to GDP, our measure of natural resources goes beyond oil rents to include forest

rents, gas rents and mineral rents. This is important as it tells us about the type of natural resource that impacts poverty. Again, it is possible that a country may be endowed with only one of these natural resources. Further, we compute the total value weighted rents from the four resource rents indicated. The importance of these variables as natural resources cannot be over looked.

2.2.5.2 Is Natural resource a curse or blessing?

Indeed, there are many advantages that natural resources present for economic growth and development. On the other hand, it is well recognised the challenges associated with countries using their natural resource wealth to ensure sustained economic growth, development and poverty reduction. Wszkalnys (2009) indicate that particularly the presence of oil wealth in some African countries have not inured the expected benefits to the citizenry but rather caused instability and violence. The author observe this to be similar to countries that are also dependent on minerals and other forms of natural resources. This unfortunate situation has necessitated a reshaping of orthodox theories and has led to the ‘resource curse’ concept (Auty, 1993). Thus, can African countries maximise the wealth they have in improving economic growth, supporting productive sectors and in reducing poverty in the continent? Is natural resource wealth a curse or blessing to the African countries?

As indicated by Mendoza, MacArthur and Ong Lopez (2015), nations like Angola, Chad, Democratic Republic of Congo and Venezuela, for instance, are among the nations that have faced different symptoms of the natural resource curse condemnation, for example, vulnerability to boom-bust scenes and wild swings public spending and investments (i.e. spending bonanzas amid times when the cost of things are favourable, and crushing debt and severe fiscal austerity amid commodity price downturns). Slower growth, higher corruption

and more prevalent conflicts likewise frame a piece of the more extensive discomfort for these nations (Mendoza et al., 2015). This section discusses the natural resource wealth of nations and the concept of the natural resource curse.

As posited by Shaxson (2007), the ‘resource curse’ literature describes the situation where resource rich nations fail to utilise their resources for national development and even in many situations are harmed by the very resources they have. He observes that mineral or oil dependence turns out to be a curse in many ways. This includes curses in terms of economic growth, violent conflicts, greater inequality, less democracy and more corruption. Indeed, it is well established in literature that the mere presence of abundant natural resources in a country does not guarantee the country’s sustained growth and development. It is evident that still, many countries are cursed by natural resource wealth (van der Ploeg, 2010).

There are numerous examples that help illustrate the resource curse concept in Africa. For instance Equatorial Guinea, ranks 90 places amongst a list of 177 countries, in the world’s greatest difference between GDP per capita ranking and human development ranking (Shaxson, 2007). The infant mortality and under-five mortality rates have actually worsened between 1990, when oil was first discovered, and 2005, when production reached around 350,000 barrels per day (bpd). Shaxson (2007) observe that Angola’s 2007 budget was worth over \$31 billion about as much as all foreign aid to sub-Saharan Africa. The irony is that Angola ranks second worst economy in terms of under-five mortality rate, according to UN data.

Nonetheless, as indicated by Mendoza et al. (2015), some developing countries seem to have escaped this curse, where their resource wealth has rather been a blessing. Botswana, Chile and Malaysia are examples of those natural resource exporters that effectively used their wealth.

The authors observe that for these nations, the blessings have been toward investments in economic and human development, education and health of the people. These in the view of Mendoza et al. (2015) coupled with the empirical evidence to date, would suggest that natural resource wealth is a ‘double-edged sword’. Indeed, this wealth could spur rapid and inclusive development, or it could stifle economic diversification, and breed dependence, corruption and social and macroeconomic vulnerability.

We thus conjecture that: does the wealth of a resource abundance induce a movement from profit-making enterprise towards socially wasteful rent seeking? What amount of this relies on the quality of institutions, the rule of law and the degree of financial development? These are genuine questions that stem from the discussion of natural resource wealth and the adverse consequence of the resource curse syndrome. This study thus investigates whether natural resource wealth in African countries reduce poverty or improve wellbeing.

2.3 Empirical Review of Correlates of Poverty

This section reviews empirical literature that have been espoused on various correlates of poverty. First of all, literature on the three main variables of interest, remittances, financial development and natural resource wealth are reviewed to understand the findings of how these variables have been found to impact poverty levels. After this, other correlates are discussed which helped in selecting the various control variables for the research models. Special focus is made on literature from Africa whereas other literature from various continents are used to complement those reviewed in Africa. Through this, proper comparisons are made as to how the African region can take cue from other continents.

2.3.1 Empirical review of remittance-poverty nexus

Various literature has been examined on the impact of remittances on poverty. Generally these results have been mixed. While other studies find that remittance has a direct poverty mitigating impact, others do not find any direct link between remittances and poverty reduction.

Stahl (1982) writes that: “migration, particularly international migration, can be an expensive venture. Clearly, it is going to be the better-off households which will be more capable of (producing international migrants)” Similarly, Lipton (1980) in a study of internal migration of 40 villages in India, found that “migration increases intra-rural inequalities ... because better-off migrants are ‘pulled’ toward fairly firm prospects of a job (in a city or abroad), whereas the poor are ‘pushed’ by rural poverty and labour-replacing methods”. A study by World Bank (2007) has found that migration patterns in East European, and former Soviet Union nations are such that wealthier families receive greater remittances than do poorer households. This view has been challenged by Koechlin and Leon (2006) who find that as migrants form close networks in host nations, migration costs falls, and remittances no longer deepen inequalities in the home country.

Further, some studies find that families who receive remittances normally spend the remittance on consumption goods such as food and consumer goods. These studies posit that these examples of expenditure have minimal benefit to the recipients’ nations. For example, a review of the literature by Chami, Fullenkamp and Jahjah (2003) reports that a “significant proportion, and often the majority” of remittances is spent on “status-oriented” consumption goods. These authors likewise find that the ways in which remittances are typically invested—in housing, land, and jewellery—are “not productive” to the economy as a whole.

However, these pessimistic findings are challenged by studies like Gupta et al. (2009), Acosta, Calderon, Fajnzylber & Lopez (2008), Vargas-Silva et al. (2009) and Adams and Page (2005). Thus, other studies propose that international migration and remittances can and do benefit the poor. Gupta et al. (2009) finds that remittances reduces poverty directly in Sub-Saharan Africa. Acosta et al. (2008) find similar results for Latin American and Caribbean (LAC) countries where remittances was found to reduce inequality and poverty levels. Vargas-Silva, Jha and Sugiyarto (2009) examine the impact of remittances on poverty and economic growth in Asia and also find that remittances do reduce poverty. Adams and Page (2005) gave an international study of the relationship between remittances and poverty. Using 71 countries and using the Foster et al. (1984), they find that on average, a 10% increase in the percentage of international migrants in a country's population resulted in a 2.1–3.5% decrease in the poverty headcount (using the Ordinary Least Squares (OLS) and instrumental variables estimates, respectively). They also concluded that international migration and remittances were endogenous to poverty.

Acosta et al. (2008) find similar results for the group of Latin American countries while Anyanwu & Erhijakpor (2010) and Gupta et al. (2009) also find similar evidence for African countries. Further, country-specific studies – for example, for Guatemala (Adams, 2006), Ghana (Adams et al., 2008; Quartey, 2006), and Nigeria (Odozia et al., 2010) –finds that remittances can reduce the share of poor people in the population, and in some cases, reduce the depth and severity of poverty as well. Adams (2006) finds that international remittances significantly relieved poverty among the “poorest of poor households.” Lokshin et al. (2010) and World Bank (2006) finds that, out of the 11% points reduction in headcount poverty in Nepal between 1995 and 2004 – a time of great economic and political difficulties a fifth to one-half of this poverty reduction is attributed to remittances. Hatemi-J and Uddin (2014) did a study of the causal nexus of remittance and poverty in Bangladesh. They find that the

causality nexus of poverty and remittances is bi-directional. They further found that the causal impact of poverty reduction on remittance is stronger than the reverse impact implying that remittance can be influenced through poverty reduction in the long run.

This study tests the relationship between remittances and poverty/welfare to assess whether remittances does actually reduce poverty or improve welfare or otherwise.

2.3.2 Empirical review of financial development-poverty nexus

Studies have also examined whether financial development reduce poverty. The evidence has been largely inconclusive (Arouri, Uddin, Shahbaz, & Teulon, 2014). While some studies posit a direct link between financial development and poverty reduction (Odhiambo, 2009), others find an indirect link through different transmission mechanism and frameworks of the study area. Others too do not find any evidence to support the direct impact of financial development on poverty (Haber et al., 2003 and Bourguignon & Verdier, 2000). Empirically, some of the studies that have attempted to examine the relationship between financial development and poverty reduction are, Odhiambo (2009), Quartey (2005), Honohan (2004), Banerjee & Newman (1993), Dollar & Kraay (2002), Honohan (2004), Beck et al. (2007) and Honohan & Beck (2007).

Odhiambo (2009) examined the causal relationship between finance, growth and poverty reduction in South Africa and found that financial development Granger cause poverty reduction in South Africa. . Odhiambo (2010) found that financial development Granger causes domestic savings and hence poverty reduction in Kenya. Quartey (2005) examined the relationship between financial development, savings mobilization and poverty reduction in Ghana and found that even though financial development does not Granger-cause savings

mobilization in Ghana, it induces poverty reduction. Honohan (2004) found that a 10-percentage point increase in the ratio of private credit to GDP should reduce poverty ratios by 2.5–3 percentage points. Beck et al. (2004) while using data on 52 developing and developed countries to assess the relationship between financial development and income distribution reported that the income of the poorest 20% of the population grows faster than the average GDP per capita in countries with higher financial development. Jeanneney and Kpodar (2008) finds that standard financial liberalization is directly effective in reducing poverty. Shahbaz (2009) investigated the impact of financial development and financial instability on poverty reduction. The results indicated that financial development is negatively related with poverty. Ellahi (2011) also found that cointegration exist between financial development and poverty reduction. Akhter and Daly (2009) did a study on finance and development using the fixed effect vector decomposition and found that on financial development on average is conducive for poverty reduction but notes that the financial instability however is detrimental to the poor.

2.3.3 Empirical review of natural resource wealth-poverty nexus

As explained earlier, there is general expectation that resource rich economies can enhance the growth and development of their economies to ensure reduction in poverty levels of the citizenry. While some countries like Chile and Botswana have used their resource wealth to help the development of their citizenry (Ormande, 2011), contrary evidence have been found for most countries especially in Africa where most of the citizens of these nations remain poor in the presence of abundant natural resources. Thus, evidence paint mixed picture concerning the relationship between natural resource wealth and human development (Mendoza, 2015).

Ormonde (2011) did a study on whether minerals have helped reduce poverty in some selected countries with mineral abundance. These countries include Botswana, Nigeria, Zambia,

Bolivia, Chile, and Venezuela. The results show that in Chile and Botswana mineral rents has been effectively used to increase economic growth and reduce poverty even though inequality remains high in both countries. The study however notes that Nigeria and Zambia have the highest poverty rates among the countries even though they have an extensive mineral base. They find that Bolivia and Venezuela however have unstable economic growth and varied levels of poverty. The study of Mendoza (2015) further show that Cameroon has little to show for the vast amounts of oil wealth in the country. Gauthier and Zeufack (2011) even show that up to 54 per cent of the total oil rent in Cameroon has not been transferred to the public sector budget and remains unaccounted for. The authors note that the infant mortality rate, child malnutrition and life expectancy actually worsened in that country in the period of its oil boom.

Sachs and Warner (1995), examined data for about 70 countries during the period 1970-1990 and found that nations with a high ratio of natural resource exports to GDP in 1970 (the base year) tended to grow slowly during the subsequent 20-year period, i.e. 1970-1990. Hinojosa et al. (2010) used 74 countries in which the level of dependence on export of minerals has been superior to 10 per cent in the period 1995-2005. These authors find little evidence of a conclusive link across mineral wealth, state revenue and social welfare policy. Among some of the reasons why countries have failed to maximise their resource wealth to inure to the benefits of their people is weaker institutions. Save the Children (2003) conclude that the net impact of extractive industries has become adverse, mostly for children, particularly due to the mismanagement of natural resource wealth by governments. The World Bank (2006), UNCTAD (2006) and ICCM (2006) conclude that poor regulation (as well as corruption) is associated with (sometimes illegal) artisanal mining, child labour and subsequent harmful environmental repercussions. In addition, bad governance and corruption is also associated with weaker or very unstable and volatile human capital investments and social spending.

Pineda and Rodriguez (2010) undertake multi-country regression analysis, and found that natural resource abundance are positively and significantly correlated with human development from 1970 to 2005. This suggests that the extractive industries sector could contribute to human development.

2.3.4 Empirical review of other correlates of poverty

Studies have also identified several indicators that are seen to have some impact on poverty reduction or improve welfare. Here, we discuss some of these correlates as indicated in literature from which some were used as control variables in this study. Among some of these variables that have been seen to have some relationship with poverty are Foreign Direct Investment (FDI), AID, Infrastructure, conflict, and growth among others. Some of these are discussed below:

Foreign Direct Investment (FDI) and Poverty Reduction

A lot of studies have been done in examining the impact of FDI on poverty reduction. The results of most studies which have used economic growth as poverty indicators have been ambiguous. Very few papers exist in examining the direct link between FDI and welfare. While there is abundant studies on the impact of FDI on economic growth, literature on the impact of FDI on welfare is lacking (Gohuo and Samoure, 2012). Few studies have thus examined the direct impact of FDI on poverty or welfare and specifically using HDI as a welfare measure. Sharma and Gani (2004) found a positive impact of FDI on HDI for middle- and low-income countries between 1975 and 1999. Gohou and Soumare (2012) re-examined the relationship between foreign direct investment (FDI) inflows and welfare (or poverty reduction) in Africa. Using HDI as a measure of poverty, their study confirms a significantly strong relationship

between FDI net inflows and poverty reduction in Africa. This study tests FDI as an alternative inflows to remittance to know its impact on welfare.

Foreign Aid and Poverty

The primary goal of foreign aid is to alleviate poverty in developing countries. In the past several decades, there have been huge inflows of foreign aid to developing countries. Various studies are also available testing the development impact of foreign aid generally on growth and poverty. The results have been generally mixed. Alvi and Senbeta (2012) finds that aid significantly reduces poverty. Collier and Dollar (2002) finds that aid was responsible for lifting approximately 10 million people out of extreme poverty each year only when it translates into economic growth of the country. They argued that aid could be more effective if it was allocated according to the quality of policies in recipient countries. However, the opponents of aid are unconvinced of the 'productivity' of foreign aid. Some of the studies including that of Rajan and Subramanian (2005) argue that aid reduces growth through reduced domestic savings, overvaluation of exchange rate and finances consumption. Easterly et al. (2004) particularly finds that aid actually weakens institutions of the recipient nations. This assertion was further evident in the findings of Kosack (2003) who examined the impact of foreign aid on quality of life using the Human Development Index as a proxy. The results show that the impact of aid depends on the quality of institutions in recipient countries and that aid is effective in improving quality of life in democracies but has no effect in autocracies. Arvin and Barillas (2002) tested the causal link between aid, democracy and poverty using data from 118 countries. Their results suggest that depending on the state of democracy, there is no significant causal relationship between aid and income per capita (and by implication poverty). This study also tests AID as an alternative inflows to remittance to know its impact on welfare.

Infrastructure and Poverty

A strong relationship has been found between improvement in infrastructure and poverty. Gohuo and Samoure (2012) in a study in Africa used the number of telephone lines per 1000 inhabitants as provided in the World Development Indicator and finds that improvement in infrastructure directly improves welfare (HDI). Other studies also find a significant indirect relationship between infrastructure and poverty. Fan, Zhang and Zhang (2002) used roads as a measure of infrastructure to examine its impact on poverty in China. The authors find that investment in roads significantly reduces poverty through agricultural productivity and nonfarm employment. Balisacan and Pernia (2002) finds that investment in roads reduces poverty significantly when complemented by investment in education. Balisacan, Pernia, and Asra (2002) finds that infrastructure reduce poverty by promoting economic growth. We use infrastructure as a control variable in our study to test its relationship with welfare.

Conflict and Poverty

A strong relationship is found between increased levels of conflict and multidimensional poverty. For example, Ploughshares (2007) indicate that higher levels of armed conflicts are found in about 40% of low human-development nations globally compared with less than 2% of high and one third of medium human development nations. Ploughshares (2007) further indicate that as of 2006, Africa recorded over 40% of the world's violent conflicts. As indicated by Higgins, Sharma, Bird and Cammack (2009), conflicts have indirect and long-term poverty impacts. They observe that these conflicts result in escalated dependency ratios often resulting from absence of men and higher percentage of the disabled. Stewart & Fitzgerald (2000) and Goodhan (2001) indicate that conflicts result in millions of refugees in Africa and these are costly for host countries as they put pressure on domestic resources, jobs, and services.

Inequality and Poverty

An unequal society can be seen as a key driver of poverty. Samuelson, Macquene, and Van Niekerk (2006) explains well the impact of inequality of various dimensions of poverty. The authors indicate that higher levels of income inequality lead to low school enrolment, high fertility, corruption, insecure property rights, low life expectancy, and macroeconomic instability, which shows the multidimensional impact of income inequality. Naschold (2005) shows that for a given level of consumption, increases in inequality lead to higher levels of poverty. Anyanwu and Erhijakpor (2010) show that greater inequality leads to higher poverty levels using the Gini index as a measure of income inequality and poverty headcount, depth and severity as poverty measures. Based on African data, Ali and Thorbecke (2000) find that poverty is more sensitive to income inequality than it is to income. Adams (2004) shows that groups with less inequality experience higher levels of growth. Fosu (2010b) finds that the responsiveness of poverty to income growth is a decreasing function of inequality, and that the income elasticity of poverty is actually smaller than the inequality elasticity.

Economic growth and Poverty

Various studies have examined the relationship between economic growth and poverty. Mixed results have been found concerning this relationship. While some studies (Adams, 2004; Adams, 2003; Bruno, Ravallion, & Squire, 1998) find economic growth to reduce poverty levels, others (Fishlow, 1995; Basu & Mallick 2007) do not find any evidence to support this relationship. Bhalla (2002) even suggest a higher growth elasticity of poverty. Shorrocks and van der Hoeven (2004) finds that on average, increased economic welfare makes everyone better-off. Hence Sachs (2005) asserts that, countries focusing on pro-poor growth as a strategy should ensure that they “climb the ladder” of economic development. Ulriksen (2012) finds that the higher the levels of economic wealth, measured as GDP per capita, the lower the rate

of poverty in selected developing countries, a result consistent with that of Anyanwu and Erhijakpor (2010). Contrary evidence however note that there can be improvement in economic growth while poverty remains high (Odhiambo, 2010). As indicated earlier Fishlow (1995), in studying the relationship between inequality, poverty and growth found that economic growth could not reduce poverty mostly due to higher inequality levels.

Based on this review, the study formulates the various expectations from our main variables. The study also selects some of the variables reviewed above as controls in our specification so as to test their impact on welfare.



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter examines the analytical tools and techniques that are adopted to estimate the various correlates of poverty. The chapter explains the research design, variables description, the model specifications, the estimation technique used and the validity tests of this technique.

3.2 Research Design

The study makes use of quantitative method. In this regard, quantitative data in the form macroeconomic variables were obtained from various sources for the African countries used in the study. Panel regression analysis was used to analyse the collected data. The panel character of the data allows for the use of panel data methodology. Panel data involves the pooling of observations on a cross-section of units over several time periods and provides results that are simply not detectable in pure cross-sections or pure time-series studies (Abor, 2007). Based on the regression analysis, relationships between variables are explained and tested to ascertain if they are significant enough to be used as a bases for conclusions to be made.

3.3 Population and Sample Selection

The population of the study is all African countries. For the purposes of this study, 54 African countries were used to meet the research objectives. These countries were chosen based on data availability. The data used in thus study cover a period from 1990 to 2012.

3.4 Model Specification

General Model

$$Y_{it} = \beta X_{it} + \mu_i + \delta_t + v_{it} \dots (a)$$

Where the subscript i refers to the number of observations and t refers to different measurement within the observation. i.e. the same variable measure at different points in time. β is a $k \times 1$ vector of parameters to be estimated on the explanatory variables, and X_{it} is a $1 \times k$ vector of observations on the explanatory variables. On the other hand, μ_i measures the firm specific effect while δ_t measures the time specific effect. v_{it} is regarded as the idiosyncratic error term. ($i = 1, \dots, N, t = 1, \dots, T_i$).

To address the main hypothesis of the study, we estimate a series of models starting with model b till we end with model e. This is done basically to ascertain which financial development indicator or the type of natural resource wealth that affects poverty in Africa. This helped in choosing the natural resource indicator to represent the continent and the regions (Sub-Sahara and North Africa) after which we add the controls in the subsequent estimations. First, we estimate model b below:

$$HDI_{it} = \beta_0 HDI_{i,t-1} + \beta_1 Remit_{it} + \beta_2 FD_{it} + \beta_3 NAT_{it} + \mu_i + \delta_t + v_{it} \dots (b)$$

Where, **HDI_{it}** is the Human Development Index (HDI). $Remit_{it}$ is international remittances expressed as a ratio of GDP for country i at time t . FD_{it} is financial development indicator expressed as a ratio of GDP for country i at time t . as explained earlier, FD_{it} is made up of $M2_{it}$ and $CREDIT_{it}$. NAT_{it} is natural resource rent expressed as a ratio of GDP for country i

at time t . this is made up of, Oil_{it} , $Forest_{it}$, Gas_{it} , $Minerals_{it}$, and $Rents_{it}$. μ_i captures the country fixed effects reflecting differences between countries. Thus, while panel data has a cross-sectional and a time dimension, the use of country fixed effects ensures that our estimates of the coefficients of interest are only driven by the variation within countries over time. The reason is that the country fixed effects control for time invariant country specific factors. δ_t is the time specific effect. v_{it} is the idiosyncratic error term. We then add the various controls and hence follow the specified model below:

$$HDI_{it} = \beta_0 HDI_{i,t-1} + \beta_1 Remit_{it} + \beta_2 FD_{it} + \beta_3 NAT_{it} + \beta_4 FDI_{it} + \beta_5 ODA_{it} \\ + \beta_6 POLI_{it} + \beta_7 Telephone_{it} + \mu_i + \delta_t \dots\dots\dots (c)$$

The control variables include: other foreign inflows: FDI as a ratio of GDP (FDI_{it}) and ODA as a ratio of GDP (ODA_{it}); Institutional quality which we proxy with Political rights ($POLI_{it}$) because it had a high correlation with the Rule of Law (LAW_{it}) and Civil Liberties ($CIVILIB_{it}$), and Infrastructure as measured by the logarithm of the number of fixed and mobile phones per 100 habitants ($Telephone_{it}$). After this we then introduce interaction between the main variables ($Remit_{it}$, FD_{it} & NAT_{it}) and also interactions with institutional quality ($POLI_{it}$) using the specified model below:

$$HDI_{it} = \beta_0 HDI_{i,t-1} + \beta_1 Remit_{it} + \beta_2 FD_{it} + \beta_3 NAT_{it} + \beta_4 FDI_{it} + \beta_5 ODA_{it} \\ + \beta_6 POLI_{it} + \beta_7 Telephone_{it} + \sum_{j=1}^5 \beta_{1j} Q_{j,it} + \mu_i + \delta_t + v_{it} \dots (d)$$

Where Q_{it} is a vector of interaction terms which include: $(Remit_{it} * FD_{it})$, $(Remit_{it} * POLI_{it})$, $(FD_{it} * NAT_{it})$, $(FD_{it} * POLI_{it})$ and $(NAT_{it} * POLI_{it})$. All other variables are as defined earlier.

3.5 Sources of Data

Data on the HDI was collected from the Human Development Report of the United Nations Development Programme. The data on remittances, natural resource rent, and financial development were collected from the World Development Indicators (2014) of the World Bank. Also data on the control variables (FDI as a ratio of GDP, ODA as a ratio of GDP, and infrastructure) were collected from the World Development Indicators (2014) of the World Bank. Data on Institutional quality is measured by the rule of law (LAW) from the World Governance Indicators, Political Rights (POLI) and Civil Liberties (CIVILIB) from Freedom House. The variables used in the models are defined below:

3.6 Variables Description

The main variables used to explain the correlates of poverty are, remittances, financial development and natural resources. We also use a number of control variables. These variables are explained below.

3.6.1 Main variables

In this section, we explain the main variables namely, HDI, remittances, financial development and natural resources and their proxies.

Human Development Index (HDI)

We use the HDI as provided in the Human Development Report by the UNDP. This measure a high degree of variation in well- being (Human Development Report 2005) in three main dimensions-income, education and health. We obtain data of HDI from the UNDP. Since poverty has been identified to be multidimensional, we use the HDI as our measure of poverty as used by Gohuo and Samoure (2012). We thus use welfare and poverty interchangeable in this study.

Remittances (Remit)

We use the data provided in the World Development Indicators as provided by the World Bank. Based on the literature, we expect either a negative or positive impact of remittance on welfare. Thus, the inflows of remittance would either be beneficial to the recipient in helping them improve their overall welfare or otherwise.

Financial development (FD)

As indicated in literature financial development can be measured by a number of factors including the depth, size, access, and soundness of financial system. In this study two indicators that measure financial development are used, namely ratio of credit to the private sector to GDP (Credit) as a measure a country's financial intermediation level and the ratio of broad money supply to GDP (M2) which is a monetization variable. Based on the literature reviewed, the direction of the relationship could either be negative or positive. Further, if the M2 is found to be uncorrelated with our poverty index, this result would reject the McKinnon conduit effect as relevant to developing countries. Likewise, if Credit is found to be orthogonal to welfare, this would imply that bank credits do not reach the poor.

Natural resources (NAT)

As explained in the literature our measure of natural resource is broader as compared to previous studies. In terms of contribution to GDP, our measure of natural resources goes beyond oil rents (Oil) to include forest rents (Forest), gas rents (Gas), mineral rents (Minerals) and the total value weighted natural resource. This is important as it tells us about the type of natural resource that impacts poverty. We also generate a value weighted total natural resource rents to account for the total rents received by a country taking into consideration the particular source of the rents. This includes oil, forest, gas and mineral rents. We follow the formula below:

$$Rents_{it} = \sum_{j=1}^4 W_{j,i,t} J_{i,t}$$

$Rents_{it}$ is the total value weighted rents of country i at time t. W_{ij} is the weight of resource rent j (forest, oil, gas, or mineral rent), thus the value of the particular rent divided by the total rents of country i at time t. $J_{i,t}$ is the resource rent j (forest, oil, gas, or mineral rent) of country i at time t. j is the number of resource rent included in the calculation. Data on natural resource is collected from World Development Indicators. The importance of these variables as natural resources cannot be over looked. We use these measures of natural resource revenues because it is fairly wide in terms of country coverage. Therefore we are able to minimize the risk of sample selection bias. It also provides a reasonably long time dimension and they have been used in other studies. Based on the literature reviewed, the direction of natural resources with respect to poverty is also mixed. We thus expect either a positive or negative impact on welfare.

3.6.2 Control Variables

Based on the literature reviewed, the study chooses some control variables that have been found to affect poverty. The various control variables used are explained below.

Institutional Quality

For our institutional quality variable, we first selected the Rule of Law Index provided in the Worldwide Governance Indicators. As indicated in the World Governance Indicators, this index measures the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence is used as a proxy for institutional quality. The indicators are six dimensions with other five indicators in addition to the Rule of Law index. These include: *Voice and Accountability*, *Political Stability and Absence of Violence/Terrorism*, *Government Effectiveness*, *Regulatory Quality*, and *Control of Corruption*. As provided by the World Bank, these indicators are highly correlated hence, our use of Rule of law index (LAW), could be seen to explain the other five dimensions of institutional quality. We also selected the Civil Liberties and Political Rights Indexes from the Freedom House. We used these measures of institutions because they are ordinal and therefore allow us to distinguish between different shades of democracy and the quality of political institutions. In our regression analysis however, we choose one of these indicators (Political Rights) to represent our institutional quality variable as all the three indicators (Civil Liberties, Rule of Law and Political Rights) were found to be highly correlated with one another. Hence, our measure of institutions (Political Rights-POLI) could be seen to explain all the dimensions of institutional quality variables indicated above. This index has values from 1 to 7 with higher values implying worst institutions. Thus, we expect a negative relationship between our

institutional quality variable (Political Rights) and welfare. Indicating that worst political institutions reduce welfare.

Foreign Direct Investment (FDI)

FDI is measured by FDI net inflows, that is, the sum of equity capital, reinvested earnings, long-term capital, and short-term capital as shown in the balance of payment. This is obtained from the World Development Indicators of the World Bank. Hence, we use FDI net inflows as a ratio of GDP as a control variable indicating an alternative inflow to remittances. It is expected that increase in the inflows of FDI will lead to an improvement in welfare. We expect a positive effect of FDI on welfare.

Official Development Assistance and AID (ODA)

In examining another alternative inflow that has also been widely explored in literature proving mixed results, the study uses AID as another control variable. This is also taken from the World Development Indicators. As explained in literature, there is no consensus on the relationship between aid and poverty. We thus expect this relationship to go in any direction.

Infrastructure (Telephone)

As a measure of infrastructure, we use the logarithm of the number of fixed and mobile phones per 100 habitants as provided in the World Development Indicators. It is expected that improvement in the infrastructure of a country will lead to an improvement of the welfare of the people. Thus, we expect a positive effect of infrastructure on welfare.

NB: it is necessary to note that Since FD includes M2 and Credit, and NAT includes forest, minerals, gas, oil, and total value weighted rents, all the models were estimated separately for each indicator of financial development and natural resources. However, a single resource indicator is chosen to proxy natural resources for Africa and also for the regions (SSA and NA) based on its explanatory power in the preliminary tests.

3.6.3 Justification of interaction terms

Following from Model (d), we justify why we use the various interactions in this study.

Remittance and financial development ($Remit_{it} * FD_{it}$)

This variable serves to show the role of remittances on poverty using the financial sector transmission mechanism. Remittances present an opportunity for recipient households to access formal financial services. This may most likely begin with savings products offered by various financial institutions. We expect the interaction term ($Remit_{it} * FD_{it}$) to be significantly positive. This would imply that remittances would be seen to improve welfare when there is development of the financial sector.

$$\begin{aligned}
 HDI_{it} = & \beta_0 HDI_{i,t-1} + \beta_1 Remit_{it} + \beta_2 FD_{it} + \beta_3 NAT_{it} + \beta_4 FDI_{it} + \beta_5 ODA_{it} \\
 & + \beta_6 POLI_{it} + \beta_7 Telephone_{it} + \beta_8 (Remit_{it} * FD_{it}) + \mu_i + \delta_t + v_{it}
 \end{aligned}
 \tag{d.1}$$

All variables are as defined earlier.

Remittance and Institutional quality ($Remit_{it} * POLI_{it}$)

Although the effect of remittances on poverty is mixed, countries with well-functioning domestic institutions or regulatory environment where there is contract enforcement and ease of doing business may seem nevertheless to be better at unlocking the potential for remittances to contribute to reducing poverty. As indicated by Catrinescu, Leon-Ledesma, Piracha and Quilin (2009) indicate, economic and political institutions are instrumental in establishing the “rules of the game” for a society as they formulate the formal and informal constraints on political, economic and social interactions. The authors find that remittances have a long-term positive impact of growth in higher quality political and economic policies and institutions. We expect the interaction term ($Remit_{it} * POLI_{it}$) to be significantly negative. This would imply remittance will have a negative impact on welfare when there is weak regulatory environment and a positive impact on welfare when there is higher institutional quality.

$$\begin{aligned}
 HDI_{it} = & \beta_0 HDI_{i,t-1} + \beta_1 Remit_{it} + \beta_2 FD_{it} + \beta_3 NAT_{it} + \beta_4 FDI_{it} + \beta_5 ODA_{it} \\
 & + \beta_6 POLI_{it} + \beta_7 Telephone_{it} + \beta_8 (Remit_{it} * POLI_{it}) + \mu_i + \delta_t \dots (d.2) \\
 & + v_{it}
 \end{aligned}$$

All variables are as defined earlier.

Financial development and Institutional quality ($FD_{it} * POLI_{it}$)

A well-developed financial system requires a proper legal and regulatory framework. Explaining the law-finance theory, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997) postulate that countries in which legal systems provide proper protection to investors against expropriation by entrepreneurs are likely to have larger and better developed

financial markets. Girma & Shortland (2008) and Huang (2010) find positive effects of political institutions on financial development, and Bhattacharyya (2013) finds that democratization leads to a more market-based financial system. While the direct link between financial development and poverty is mixed, we postulate that proper regulation in the sector that makes financial development more inclusive of the poor would tend to reduce poverty. Thus, we include an interaction between the financial development indicators and institutional quality variables ($FD_{it} * POLI_{it}$) and expect a negative sign. This would imply development of the financial sector with weak regulatory environment would only lead to reduce welfare.

This is shown in the model below.

$$HDI_{it} = \beta_0 HDI_{i,t-1} + \beta_1 Remit_{it} + \beta_2 FD_{it} + \beta_3 NAT_{it} + \beta_4 FDI_{it} + \beta_5 ODA_{it} \\ + \beta_6 POLI_{it} + \beta_7 Telephone_{it} + \beta_8 (FD_{it} * POLI_{it}) + \mu_i + \delta_t + v_{it} \dots (d.3)$$

All variables are as defined earlier.

Natural resource rent and Institutional quality ($NAT_{it} * POLI_{it}$)

As indicated in literature, the impact of natural resource wealth on poverty has been mixed. Even the concept of resource curse where the discovery and abundance of natural resource wealth has turned to even harm some economies. As indicated by Auty (2001), the mismanagement of resources lies at the core of the curse. African governments can adopt national strategies that set the terms on which their natural resources will be developed, and link these strategies to plans for poverty reduction and inclusive growth. This should include building strong institutions including legislation take makes the management of their resources more transparent. Thus African governments must put transparency and accountability at the heart of their natural resource policies. We thus interact natural resource with our institutional

quality variable ($NAT_{it} * POLI_{it}$) and expect the interaction term to be negative. This shows that abundance of natural resources in weak institutional environment would lead to a decrease in welfare. This is shown in the model below.

$$HDI_{it} = \beta_0 HDI_{i,t-1} + \beta_1 Remit_{it} + \beta_2 FD_{it} + \beta_3 NAT_{it} + \beta_4 FDI_{it} + \beta_5 ODA_{it} \\ + \beta_6 POLI_{it} + \beta_7 Telephone_{it} + \beta_8 (NAT_{it} * POLI_{it}) + \mu_i + \delta_t + v_{it} \\ \dots\dots\dots (d.4)$$

All variables are as defined earlier.

Financial development and Natural resource ($FD_{it} * NAT_{it}$)

Again, we conjecture that, in a resource-rich country, banks will be more liquidity as they are likely to have much deposits from tax receipts from government or direct deposits from private enterprises in the resource sector. Hence we interact the natural resource variable with the financial development indicator ($FD_{it} * NAT_{it}$) to know whether financial development actually plays an intermediary role in the natural resource-welfare relationship. We expect a positive coefficient of the interaction term. This would mean that, in a country where there is resource abundance, the financial sector would develop and hence translate into improving welfare. This is defined in the model below.

$$HDI_{it} = \beta_0 HDI_{i,t-1} + \beta_1 Remit_{it} + \beta_2 FD_{it} + \beta_3 NAT_{it} + \beta_4 FDI_{it} + \beta_5 ODA_{it} \\ + \beta_6 POLI_{it} + \beta_7 Telephone_{it} + \beta_8 (FD_{it} * NAT_{it}) + \delta_t + v_{it} \dots (d.5)$$

All variables are as defined earlier.

3.6.4 Examining regional differences

After assessing the impact of remittances, financial development and natural resources with controls on welfare in Africa as a whole, we then proceed to test whether there are sub-regional differences in terms of this relationship. We mainly explore differences in Sub-Saharan African region and that of North African region. We follow the model below:

$$\begin{aligned}
 HDI_{it} = & \beta_0 HDI_{i,t-1} + \beta_1 (Remit_{it} * SSA) + \beta_2 (Remit_{it} * NA) + \beta_3 (FD_{it} * SSA) \\
 & + \beta_4 (FD_{it} * NA) + \beta_5 (NAT_{it} * SSA) + \beta_6 (NAT_{it} * NA) + \beta_7 FDI_{it} \\
 & + \beta_8 ODA_{it} + \beta_9 POLI_{it} + \beta_{10} Telephone_{it} + \mu_i + \delta_t + v_{it} \quad \dots\dots (e)
 \end{aligned}$$

Sub-Saharan Africa (*SSA*) and North Africa (*NA*) are regional dummies that capture variation in the dependent variable due to regional difference. The dummy takes a value of 1 if the country belongs to a particular region and 0 if otherwise. The dummy is then multiplied by the variable as shown in the model above. All other variables are as defined earlier.

3.7 Estimation technique and robustness check

The structure of the model gives rise to autocorrelations as well as correlation between the bank fixed effects and the error. This problem of endogeneity is corrected using the difference generalized method of moments (GMM) of Arellano and Bond (1991) which uses the first difference of the explanatory variables to deal with the fixed effects and their lagged values as instruments. However several problems may arise from the difference estimator. Thus, using the first difference of the explanatory variables to deal with the fixed effects and their lagged values as instruments, when the explanatory variables are persistent over time, lagged levels make weak instruments for the regression equation in first

differences (Blundell & Bond, 1998 and Alonso-Borrego & Arellano, 1999). Instrument weakness influences the asymptotic and small-sample performance of the difference estimator. Asymptotically, the variance of the coefficients rises. In small samples, weak instruments can bias the coefficients and thus the difference GMM has been found to have low predictive ability.

To reduce the potential biases and imprecision associated with the usual estimator, we use a new estimator that combines in a system the regression in differences with the regression in levels. We use the system-GMM (GMM-SYS) estimator which is a product of the work done by Blundell and Bond (1998). The instruments for the regression in differences are the same as above. The instruments for the regression in levels are the lagged differences of the corresponding variables. These are appropriate instruments under the following *additional* assumption: although there may be correlation between the levels of the right-hand variables and the country-specific effect in the difference estimator, there is no correlation between the differences of these variables and the country specific effect. We thus employ the system GMM estimator which is an improvement over the difference GMM. Our panel consists of data for a maximum of 54 countries from 1990–2012.

3.7.1 Specification Tests

There are two specification tests we apply to test our main hypothesis:

- i) We test the instrument validity by using Hansen's J statistic of over-identifying restrictions. The Hansen's J statistic is used in place of the Sargan test of over-identifying restrictions because of its consistency in the presence of autocorrelation and heteroscedasticity (Neanidis & Varvarigos, 2009; Roodman, 2007).

ii) We make sure we check whether deeper lags of the instrumented variables are correlated with deeper lags of the disturbances .We use the Arellano and Bond (1991) AR (1) & AR (2) tests for first and second order serial autocorrelation. For system-GMM we only check for the absence of second order serial autocorrelation.



CHAPTER FOUR

ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter consists of analysis and discussion of the data collected in relation to correlates of poverty in Africa. This chapter considered descriptive and inferential method of statistical analysis.

4.2 Summary Statistics

Table 4.1 shows the descriptive statistics of the research variables. The statistics for the entire African continent is provided. The minimum and the maximum values of the variables as well as the mean scores of the data were assessed. The Shapiro-Wilk test of normal data is also provided.

From Table 4.1, it can be seen that average HDI for African countries over the period was 0.45 showing low human development in the region. Remittances formed an average of 3.60% of GDP (Remit) close to the average FDI inflows of 4.15% over the period. Aid which is another inflow formed an average of 11.59% higher than the other inflows. This indicate that ODA inflows into Africa exceeds FDI and remittance inflows. Total credit formed an average of 20.34% of GDP over the same period lower than M2 which formed an average of 34.35% of GDP. It would thus be interesting to test the most impactful financial development transmission channel that improve welfare most. In terms of Natural resources, Oil rents formed the greater portion of GDP with 11.55% followed by Forest rents with 6.03% of GDP, Mineral rents with 1.44% and then Gas rents with 0.9%.

Table 4.1 Descriptive Statistics

Table 4.1 Descriptive Statistics						Shapiro-Wilk test	
Variable	Obs.	Mean	Std. Dev.	Min	Max	z	Prob.>z
Welfare							
HDI	1115	0.4498	0.1664	0.0450	0.8480	5.6270	0.0000
Main Independent							
Remit	976	0.0360	0.0795	0.0000	0.7912	14.542	0.0000
Credit	1150	0.2045	0.2198	0.0072	1.6754	13.540	0.0000
M2	1155	0.3418	0.2462	0.0083	1.5155	12.191	0.0000
Forest	1182	0.0603	0.0766	0.0000	0.6280	13.318	0.0000
Mineral	1184	0.0144	0.0463	0.0000	0.5433	15.145	0.0000
Gas	636	0.00931	0.02709	0.0000	0.21250	13.003	0.0000
Oil	648	0.1155	0.1941	0.0000	0.8065	11.078	0.0000
Rents	1182	0.1176	0.1446	0.0000	0.7717	13.168	0.0000
Controls – Economy and Policy							
Telephone	1221	19.6828	32.1429	0.0000	200.7793	13.865	0.0000
Controls –Other Inflows							
FDI	1167	0.0415	0.0975	-0.8289	1.4520	14.895	0.0000
ODA	1181	0.1159	0.1307	-0.0025	1.4717	13.290	0.0000
Institutional Quality							
Law	744	-0.7113	0.6676	-2.6689	1.0567	2.329	0.0099
Civilib	1218	4.4483	1.4490	1	7	3.129	0.0009
POLI	1218	4.6921	1.8541	1	7	7.913	0.0000

Source: Computations from research data, 2014. NB: HDI, Human Development Index; Remit, Remittance as a ratio of GDP; Credit, Total credit to the private sector as a ratio of GDP; M2, Ratio of M2 to GDP; Forest, Ratio of Forest rents to GDP; Mineral, Ratio of Mineral rents to GDP; Gas, Ratio of Gas rents to GDP; Oil, Ratio of Oil rents to GDP; Rents, Total Value Weighted Natural resource rents as a ratio of GDP; Telephone, the logarithm of the number of fixed and mobile phones per 100 habitants; FDI, Ratio of Foreign Direct Investment to GDP; ODA, Ratio of Net development assistance and Aid to GDP; LAW, Rule of Law; Civilib, Civil Liberty, POLI, Political Rights.

The total value weighted rents for the period stood at 11.76%. in terms of the institutional quality variables, Africa has not got a good story to tell as well with rule of law (LAW) averaging -0.7113 and civil liberties and political rights averaging 4.45 and 4.69 respectively showing weaker institutions. The Shapiro-Wilk test indicate that none of the variables is normally distributed.

4.3 Correlation Analysis

The correlation analysis was used basically to test the relationship between the dependent variable and the independent variables and to check for the presence of multicollinearity. As indicated by According to Evans (1996), correlation coefficients of below 0.60 indicate that weaker relationships exist among the independent variables, hence the avoidance of any potential multicollinearity problems in the regression estimates. From Table 4.2 below, First, the two Financial Development Indicators, Credit and M2 have a high correlation at 61%. Since, we like to test the most effective transmission channel of financial development in improving welfare or reducing poverty, these variables are substituted for each other and used separately in different models. Again, in order to test the most effective natural resource rent that improves welfare, each natural resource indicator is used in a separate model. Further, looking at the institutional quality variables, Civil Liberty (*CIVILIB*) has a very high correlation (88%) with Political Rights (*POLI*). These two indicators are also highly correlated with the Rule of Law (*LAW*) indicator. Further, because of data availability, we dropped the *LAW* (744 points). Since each of these variables measures institutional quality to some extent, as a better judicial system goes hand-in-hand with stronger individual rights, the rule of law and democracy. We thus retain only the Political Rights (*POLI*) in our estimation.

Table 4.2 Correlation Matrix

	HDI (1)	Remit (2)	Credit (3)	M2 (4)	Oil (5)	Forest (6)	Minerals (7)	Gas (8)	Rents (9)	FDI (10)	ODA (11)	LAW (12)	Civilib (13)	POLI (14)	Tele (15)
(1)	1														
(2)	0.05	1													
(3)	0.44 ***	-0.01	1												
(4)	0.49***	0.10***	0.61***	1											
(5)	0.18***	-0.20***	-0.30***	-0.29***	1										
(6)	-0.47***	-0.05	-0.31***	-0.33***	-0.18***	1									
(7)	-0.07**	-0.10***	0.01	-0.05*	-0.19***	0.09***	1								
(8)	0.31***	0.03	-0.04	0.19***	0.14***	-0.17***	-0.11***	1							
(9)	-0.04	-0.15***	-0.30***	-0.30***	0.95***	0.29***	0.13***	0.08**	1						
(10)	0.03	0.13***	-0.07**	-0.04	0.25***	0.12***	0.07**	0.00	0.21***	1					
(11)	-0.46***	0.05	-0.22***	-0.16***	-0.27***	0.61***	0.04	-0.16***	0.05*	0.05*	1				
(12)	0.55***	0.15***	0.52***	0.49***	-0.41***	-0.41***	-0.05	0.02	-0.46***	-0.05	-0.19***				
(13)	-0.26***	-0.11***	-0.31***	-0.17***	0.33***	0.20***	0.02	0.12***	0.37***	0.03	0.03	-0.70***	1		
(14)	-0.22***	-0.12***	-0.29***	-0.16***	0.36***	0.13***	0.03	0.14***	0.34***	-0.00	-0.04	-0.62***	0.88***	1	
(15)	0.48***	-0.03	0.36***	0.36***	0.09**	-0.24***	0.16***	0.16***	0.01	0.07 **	-0.26***	0.35 ***	-0.22***	-0.16***	1

Source: Computations from Research Data, 2014. * Significance at 10%, ** Significance at 5%, * Significance at 1%**

Note: HDI, Human Development Index; Remit, Remittance as a ratio of GDP; Credit, Total credit to the private sector as a ratio of GDP; M2, Ratio of M2 to GDP; Forest, Ratio of Forest rents to GDP; Minerals, Ratio of Mineral rents to GDP; Oil, Ratio of Oil rents to GDP; Rents, Total Value Weighted Natural resource rents as a ratio of GDP; FDI, Ratio of Foreign Direct Investment to GDP; ODA, Ratio of Net development assistance and Aid to GDP; LAW, Rule of Law; Civilib, Civil Liberty, POLI, Political Rights; Tele is Telephone, which is the logarithm of the number of fixed and mobile phones per 100 habitants.

4.4 Regression Analysis

This section examines the relationship between the dependent variable and the independent variables. This helped to measure how the independent variables influence poverty. First, we estimate the impact of remittance, financial development and natural resource on poverty without the controls. This was basically done to know the impact of the different measures of financial development and natural resources on poverty. This helped in having an idea of the particular channel of financial development or natural resources that impact poverty.

The results of these estimates are presented in Table 4.3 up to Table 4.8. The test of the validity of the results as indicated by the Arrellano-Bond test and the Hansen J tests suggests that the System GMM estimates of all the regressions are valid. For each of the regressions, the specification of the equation was tested with the Hansen J test for instruments validity and the serial correlation test for the second order serial correlation. Arrellano and Bond (1991) indicate that a consistent GMM estimator must not exhibit second-order autocorrelation. From the results, while there was presence of first-order autocorrelation in all the regressions (P-values < 0.05) except for Model 3, there was no autocorrelation in the second-order as all the P-values were greater than 0.05.

Preliminary estimates are done in Table 4.3. This was done basically to ascertain which natural resource indicator best represents the continent. Controlling for country and year effect, the estimates indicate that the lag of the dependent variable (HDI) has a significant positive impact on current HDI in all the regressions at 1% significance level. This indicates that improvement in previous year's welfare improves subsequent year's welfare hence supporting the dynamic nature of this relationship.

Remittance had a negative and significant impact on welfare except in models 1, 3, 6 and 8 where the relationship was positive but insignificant. This was the case when oil rents and gas rents were used in the models. Again, all the models indicate that financial development as measured by M2 has a significant and positive impact on welfare at 5% significance levels for four models and 1% significance level for the remaining one. This shows that, deposits and money balances may directly improve welfare. Looking at the ratio of total credit to the private sector to GDP (Credit) as another measure of financial development, it can be seen that Credit only shows significant positive impact on welfare in only two out of the five models at 10% significance level. In examining the natural resource measure, it can be seen from Table 4.3 that only mineral resource rents (Minerals) had a significant impact on welfare while all the other indicators showed no effect on welfare. Since mineral rents was the only indicator that showed significant impact, in all the subsequent panel regressions for Africa we use the ratio of Mineral Rents to GDP (Minerals) as our measure of natural resource wealth.

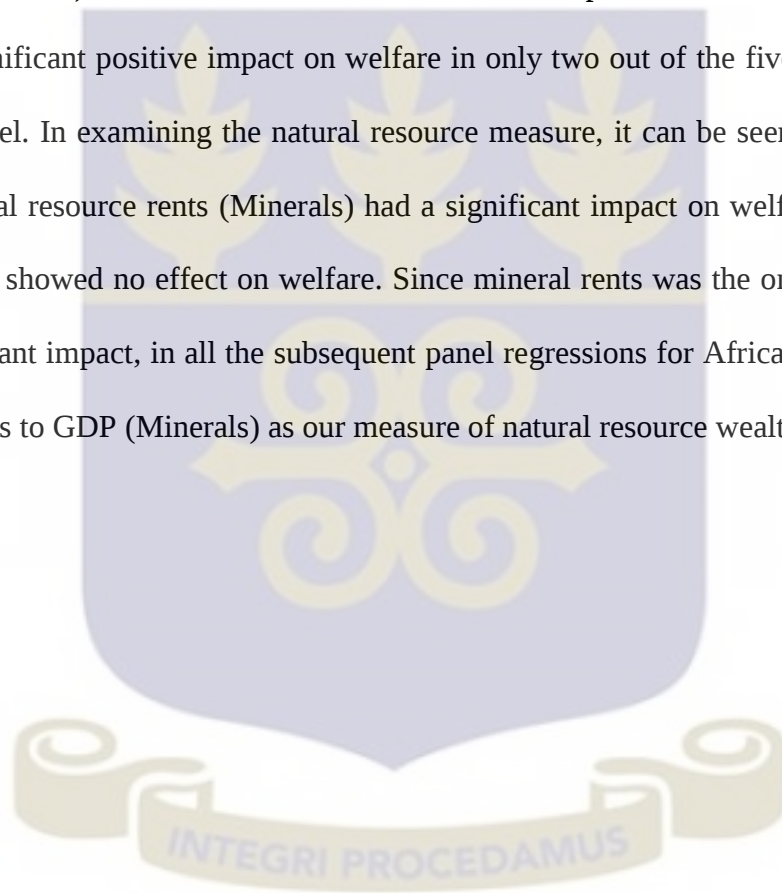


Table 4.3: Impact of Remittances, Financial Development and Natural Resource Rents on HDI in Africa, 1990 - 2012

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)	Model (10)
L.HDI	1.0376 *** (4.14)	1.0700*** (8.32)	1.0052 *** (3.93)	1.0584*** (8.17)	1.0613*** (7.91)	1.0556*** (4.74)	1.1042*** (11.24)	1.0511*** (4.8)	1.0725*** (10.72)	1.0833*** (10.93)
Remit	0.8727 (1.17)	-0.2588 *** (-2.96)	0.8641 (1.22)	-0.2539*** (-2.90)	-0.2572*** (-2.92)	1.0627 (1.34)	-0.2349** (-2.5)	1.0131 (1.40)	-0.2260** (-2.39)	-0.2270 ** (-2.34)
M2	0.1997** (2.04)	0.1725** (2.14)	0.2090 ** (2.03)	0.1602** (2.03)	0.1747*** (2.21)					
Credit						0.1322* (1.77)	0.0636 (1.03)	0.1213 * (1.69)	0.0368 (0.537)	0.0678 (1.13)
Oil	0.1071 (0.76)					0.1890 (1.3)				
Forest		-0.0784 (-0.14)					0.18737 (0.53)			
Gas			0.4644 (0.31)					0.4147 (0.17)		
Minerals				0.1878 (1.41)					0.3152** (2.10)	
Rents					0.0622 (0.58)					0.1423 (1.58)
Country effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year effect	-0.00005** (-1.99)	-0.00003 (-1.41)	-0.00002 (-2.42)	-0.00001 (-1.20)	-0.00004* (-1.82)	-0.00006** (-2.42)	-0.06230 (-0.97)	-0.00001 (-0.26)	-0.00003 (-0.54)	-0.00005** (-2.18)
Num. Obs.	515	872	518	872	872	514	869	517	869	869
AR(1): P-value	0.021	0.001	0.130	0.001	0.001	0.017	0.001	0.007	0.001	0.001
AR (2): P-value	0.853	0.423	0.690	0.407	0.435	0.795	0.560	0.620	0.474	0.539
Hansen J: P-value	0.434	0.480	0.543	0.544	0.601	0.382	0.546	0.492	0.476	0.492

Source: Based on computations from research data, 2014. Estimation is by one-step system GMM with robust standard errors. * Significance at 10%, ** Significance at 5%, *** Significance at 1%. Robust z-statistics are in parenthesis.

After the preliminary estimates, we add the various control variables. We then interact the main independent variables and introduce the control variables in the models as well to know the impact of these variables on HDI. The results of these estimates are presented in Table 4.4.

The results do confirm that previous improvement in welfare (HDI) improves current year's HDI. In Models 11 to 16, the four control variables, Political Rights (POLI), Foreign Direct Investment (FDI), Official Development Assistance and Aid (ODA), and Infrastructure as measured by Telephone Lines (Telephone) were introduced into the models. In Model 11, it can be seen that Remit has a negative effect on welfare. This suggests that, remittances received have not been effective in improving the welfare of the recipients. This may be attributed to the fact that the monies received may be used for unproductive ventures and sometimes can be used in conspicuous consumption. Further, it could be the case that it is mostly the rich who afford to migrate and hence remit more therefore leading to the rich families receiving more remittance than the poor families do. This is consistent with earlier studies that remittance may simply benefit the rich (Lipton, 1980; Stahl, 1982; World Bank, 2007) or may simply be used for consumption, sometimes even conspicuous consumption (Caceres & Saca, 2006).

This calls for us to examine the effective way to use remittance. In this regard we interact remittance with financial development to know how the relationship would be. When M2 is used, we find M2 and the interaction of remittance and M2 to be insignificant (see model 13). Thus, we find no evidence to support the transmission of remittance through M2 to impact welfare. Therefore, money balances do not play any intermediary role between remittance-poverty nexus. This supports the evidence of Caceres and Saca (2006) who find remittance to be accompanied by sharp declines in savings. Hence, we can postulate that M2 is not the effective channel for remittance to reduce poverty.

Interestingly, in model 14 when Remit is interacted with Credit, we find that both Remit and Credit reduce welfare at 1% significance levels. However, the interaction of Remit and Credit is seen to improve welfare significantly at 1%. This concludes that Remit and Credit can be better complements. Thus, for remittance to effectively improve welfare, recipients of the remittance must have better access to wider credit provided by the financial sector. This means that, the financial sector should provide financial packages that recipients of remittances can access to complement their monies received to profitably invest them and help improve their welfare. This finding may indicate that countries with high levels of financial development help migrants to send more money home and, in turn, a significant inflow of remittances contributes to promoting financial democracy –a better access of the population to services offered by financial institutions (Nyamongo et al., 2012). Such process as indicated by Nyamongo et al. (2012) may lead to a situation where an increase in remittances brings about a higher level of financial development that allows migrants to send even more money with efficient financial institutions helping to channel these remittances towards productive investment projects (Terry & Wilson, 2005). This situation may increase competition in the financial sector leading to a decline in intermediation costs, hence benefitting remittance recipients. This finding supports the complementarity hypothesis and corroborates the findings by Mundaca (2005) and Bettin and Zazzaro (2008).

Again, comparing the direct impact of M2 and Credit, we find no conclusion to support or reject McKinnon's (1973) conduit complementary hypothesis. This is because, in model 11, M2 had no impact on welfare and in model 12 credit rather reduces welfare. Unlike in our earlier estimations (see Table 4.3) without the controls, it can be seen that the explanatory power of M2 reduced and the sign of credit changed when we added the controls. These results show that, when we account for other driving factors of welfare, the true effect of financial

development on welfare is known. Specifically, while real money balances on its own does not affect welfare, provision of credit to the private sector was interestingly seen to reduce welfare. This result is surprising to some extent as provision of credit is expected to directly help improve the welfare of the people. However, this may be the case that in Africa, cost of obtaining credit from formal financial institutions may be expensive for the poor and the loan requirements in terms of collateral and other demands from financial institutions may be difficult for the poor to meet. Further, the profit motive of these financial institutions may only make them focus more on those well-established firms or high-earned individuals. These requirements would thus only encourage or lead to the rich being the ones to access credit. This supports the argument of Greenwood and Jovanovic (1990), Haber et al. (2003), and Bourguignon & Verdier (2000) who indicate that development of the financial sector through the credit channel may benefit the rich rather than the poor because of the high cost associated with acquiring credit. Galor and Zeira (1993) even explains further by observing that these financial market imperfections, may be particularly binding on poor entrepreneurs because they lack such requirements like collateral, credit histories, and in some cases connections. According to them, these credit constraints leads to inefficient capital allocation and further income inequality (Beck *et al.*, 2004).

On the natural resources, minerals had no impact on welfare in all of the models. Thus, even though minerals was the only resource indicator that was significant in the earlier model, it can be seen that its explanatory power reduces when we control for other correlates of poverty. This results show that African governments have failed to maximise their resource abundance to benefit the poor. This does not come as a surprise as most studies have found similar resource for resource rich countries. This supports the argument of Hinojosa et al. (2010) who indicate that countries with resource abundance have failed to utilise their resource wealth in improving

the welfare of their citizenry. This may suggest the resource curse concept of Auty (1993). Again, we also find no evidence to support the transmission effect of minerals on poverty through the financial sector (see models 15 & 16). This suggests that, financial sector development plays no role in the natural resource-poverty nexus. This may support the argument of Beck (2012) who show that banks in resource-rich economies are more liquid but give fewer loans to firms and that firms in these economies use less external finance, and a smaller share of them uses bank loans even though their demand for credit is similar to the demand of firms elsewhere. This explains why the financial sector does not seem to play a critical role in the presence of higher resources.

On the control variables, based on the high correlation of Political Rights (POLI) which measures freedom for political activism with Civil Liberty (Civilib) and Rule of Law (LAW), this institutional quality variable could be seen to also measure the exercise of civil freedoms and the rule of law in a country and hence the general regulatory framework of a country. The POLI index which assigns a value of 1 to countries with the most political activism and a value of 7 to countries with the least of such rights. POLI has a significant negative impact on HDI. This was same in all the other models except in Model 15 when it wasn't significant. This largely concludes that, Political Rights' negative impact on welfare is consistent with our expectation that stronger rights improves the general welfare of the people. This means that, when African governments build strong institutions, people as well as business would thrive hence leading to the overall wellbeing of the people.

On the other inflows, FDI is seen to consistently improve welfare directly at 5% significance levels in all models except in model 14 where it was not significant. This shows that, inflows of FDI is effective in directly improving the welfare of the people. This supports the findings

of Gohuo and Samoure (2012) who find that FDI improves welfare in Africa. ODA on the other hand, had no impact on welfare in all of the models. This indicates the ineffectiveness of aid in improving the welfare of the people in Africa. While there has been various arguments in literature concerning the effectiveness of aid in improving welfare or otherwise, our results consistently showed that aid does not improve welfare in Africa. This supports the findings of Chong, Gradstein, and Calderon (2009) who examined the impact of aid on both poverty and income inequality and failed to find a robust statistical relationship between aid and poverty or inequality.

The results also indicate that, improvement in infrastructure is seen to improve welfare in all models. It is intuitive that, when governments invests in infrastructure, it provides the conducive environment for businesses to grow. While this happens, at the micro and macro levels, individuals, businesses and the nation stands to benefit leading to the overall development of the economy. This supports the findings of Gohuo and Samoure (2012) who find that infrastructural development improves welfare of people in Africa.

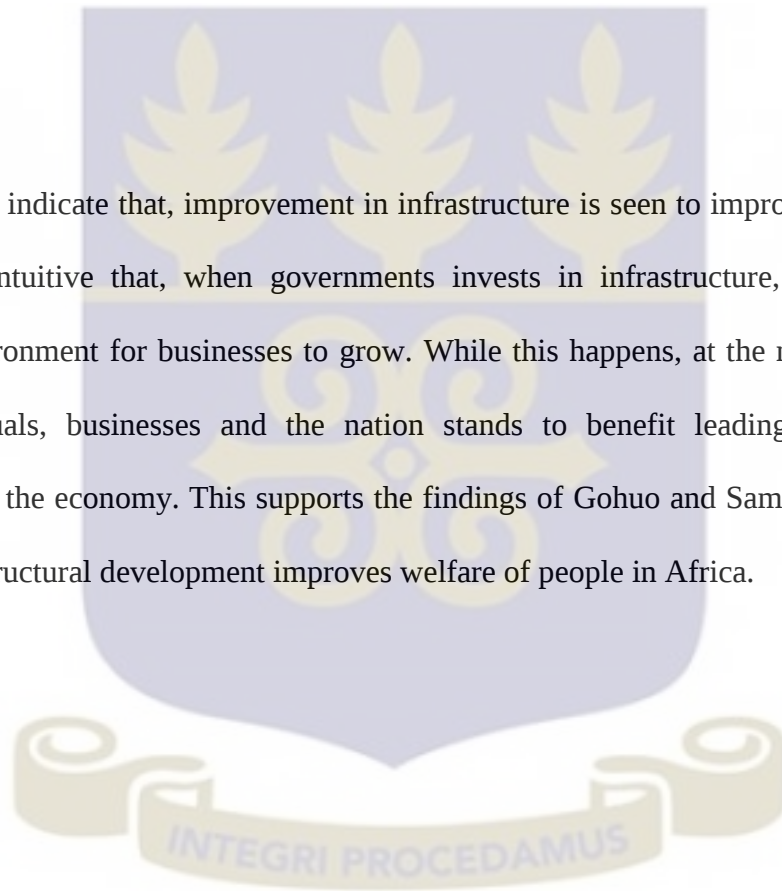


Table 4.4: Impact of Remittances, Financial Development and Natural Resource Rents on HDI with Controls and Interactions, 1990-2012

	Model (11)	Model (12)	Model (13)	Model (14)	Model (15)	Model (16)
L.HDI	0.9448 *** (7.10)	0.9010 *** (7.86)	0.9479 *** (7.37)	0.87532 *** (7.64)	0.9401 *** (7.02)	0.9008 *** (7.82)
Remit	-0.1228 * (-1.65)	-0.0685 (-0.93)	-0.0077 (-0.01)	-0.6156 *** (-3.99)	-0.1211 (-1.59)	-0.0698 (-0.94)
M2	0.0413 (0.55)		0.0556 (0.44)		-0.0260 (-0.30)	
CREDIT		-0.1869 *** (-3.10)		-0.2441 *** (-4.25)		-0.1918 *** (-3.5)
Mineral	0.0288 (0.23)	0.0638 (0.52)	0.0337 (0.26)	0.0470 (0.39)	-0.5809 (-1.21)	0.0342 (0.11)
POLI	-0.0105 * (-1.83)	-0.0124 ** (-2.41)	-0.0102 * (-1.80)	-0.0130 ** (-2.57)	-0.0087 (-1.52)	-0.0122 ** (-2.42)
FDI	0.0642 ** (1.99)	0.0575 ** (2.07)	0.0665 ** (2.0)	0.0472 (1.48)	0.0649 ** (2.36)	0.0572 ** (2.09)
ODA	0.0457 (0.45)	0.0539 (0.55)	0.0528 (0.48)	0.0352 (0.36)	0.0048 (0.05)	0.0501 (0.50)
Telephone	0.0004 ** (2.34)	0.0007 *** (3.87)	0.0004 ** (2.31)	0.0007 *** (3.22)	0.0004 ** (2.35)	0.0007 *** (3.78)
Remit *M2			-0.2813 (-0.21)			
Remit *Credit				2.9470 *** (3.22)		
Mineral *M2					2.4142 (1.26)	
Mineral *Credit						0.2035 (0.11)
Country effect	YES	YES	YES	YES	YES	YES
Year effect	0.00004 (1.08)	0.00006 * (1.85)	0.00003 (0.97)	0.00007 ** (2.20)	0.00004 (1.13)	0.00006* (1.85)
Num. Obs.	868	866	868	866	868	866
AR(1): P-value	0.001	0.001	0.001	0.001	0.001	0.001
AR (2): P-value	0.619	0.632	0.628	0.732	0.608	0.629
Hansen J: P-value	0.638	0.376	0.530	0.401	0.550	0.395

Source: Based on computations from research data, 2014. Estimation is by one-step system GMM with robust standard errors. * Significance at 10%, ** Significance at 5%, *** Significance at 1%. Robust z-statistics are in parenthesis.

The Moderating role of Institutions in the Impact of Remittance, Financial development and Natural resources on HDI

As posited in literature, strong political institutions could be a catalyst for remittance to improve welfare as well as ensure the effective financial intermediation to improve welfare. Further, strong political institutions can also ensure effective use of a country's natural resources to the benefit of the citizenry thus, improving welfare. Hence, we interact our three main independent variables, remittances, financial development and natural resource, and our institutional quality variable, Political Rights (POLI). We then introduce the controls to test how the relationship would be after.

The results of these estimates are presented in Table 4.5. The results do confirm that previous improvement in welfare (HDI) improves current year's HDI. The findings indicate that the interaction of remittance and institutional quality (Remit*POLI) was negative but insignificant (see model 17). This was the same for the results (See model 19) for the interaction between minerals and institutional quality (Minerals*POLI). Thus, we find no evidence to support the transmission of remittances and minerals through the institutional framework. The results for the controls (FDI, ODA, Telephone and POLI) were consistent with our earlier findings (see Table 4.4). Further, in Table 4.5, looking at model 18, the interaction between M2 and POLI showed a significant positive effect at 1% significance level while M2 and POLI on their own showed up to have significant negative impact on welfare at 1% significance levels. Similar results was seen when Credit is used as a financial development indicator. Thus, Credit and POLI on their own showed a significant negative impact on welfare at 1% significance level while the interaction of the two (Credit*POLI) had a significant positive impact on welfare at 1% significance level. Thus, the interaction between the financial development indicators and institutional quality variable showed up to have a significant positive impact on welfare.

Table 4.5: Impact of remittances, financial development and natural resource on HDI with interactions (Institutions) and Controls, 1990 -2012

	Model (17)	Model (18)	Model (19)	Model (20)	Model (21)	Model (22)
L.HDI	0.9455 *** (6.82)	0.9032 *** (7.42)	0.9418 *** (7.0)	0.8905 *** (7.5)	0.8511 *** (6.97)	0.9008 *** (7.84)
Remit	-0.0987 (-0.19)	-0.1551 ** (-2.26)	-0.1308 * (-1.68)	-0.4022 (-1.10)	-0.0527 (-0.67)	-0.0703 (-0.94)
M2	0.0415 (0.55)	-0.3194 *** (-2.83)	0.0446 (0.57)			
Credit				-0.1963 *** (-3.07)	-0.2709 *** (-4.88)	-0.1865 *** (-3.08)
Minerals	0.0289 (0.23)	-0.0627 (-0.52)	0.2254 (0.54)	0.0625 (0.51)	0.0068 (0.08)	0.1087 (0.32)
POLI	-0.0103 (-1.46)	-0.0330 *** (-4.38)	-0.0093 (-1.55)	-0.0145 ** (-2.26)	-0.0185 *** (-3.02)	-0.0121 ** (-2.23)
Remit * POLI	-0.0035 (-0.05)			0.0483 (0.91)		
M2*POLI		0.0743 *** (4.04)				
Credit * POLI					0.0337 *** (2.65)	
Minerals*POLI			-0.0451 (-0.49)			-0.0103 (-0.13)
FDI	0.0634 * (1.88)	0.0722 ** (2.4)	0.0662 ** (2.07)	0.0676 *** (2.81)	0.0693 * (1.81)	0.0579 ** (2.08)
ODA	0.0444 (0.42)	0.0483 (0.51)	0.0457 (0.45)	0.0697 (0.73)	0.0622 (0.65)	0.0537 (0.55)
Telephone	0.0004 ** (2.30)	0.0006 *** (3.41)	0.0004 ** (2.26)	0.0007 *** (3.90)	0.0008 ** (3.98)	0.0007 *** (3.86)
Country effect	YES	YES	YES	YES	YES	YES
Year effect	0.00004 (0.91)	0.00010 *** (2.74)	0.00003 (0.98)	0.00007 * (1.84)	0.00008 ** (2.26)	0.00006 * (1.84)
Num. Obs.	868	868	868	866	866	866
AR(1): P-value	0.002	0.002	0.001	0.002	0.002	0.001
AR (2): P-value	0.618	0.682	0.606	0.686	0.664	0.630
Hansen J: P-value	0.632	0.371	0.656	0.336	0.429	0.349

Source: Based on computations from research data, 2014. Estimation is by one-step system GMM with robust standard errors. * Significance at 10%, ** Significance at 5%, *** Significance at 1%. Robust Z-statistics in parenthesis.

These results are quite interesting. While we expected the interaction term ($M2*POLI$ & $Credit*POLI$) to be significantly negative showing that financial development in weak regulatory environment would reduce welfare, our results show positive coefficient. This could be because of the direct negative effect of financial development on welfare. Hence, the positive coefficients of the interaction between the financial development indicators and institutional quality variables ($M2*POLI$ & $Credit*POLI$) suggest that, while financial development has a direct negative impact welfare, regulation in the financial sector that accommodates the poor ensures a positive effect of financial development on welfare. As explained earlier, tighter conditions that financial institutions normally set coupled with their profit motive may only make them concentrate on the rich. These formal financial institutions like banks normally have regulatory requirements that include, provision of collaterals, credit histories, and book-keeping records among others (Galor and Zeira, 1993) which the poor normally find difficult to comply. As indicated by Holden and Prokopenko (2001), financial development can only reduce poverty when there is available financial instruments, services and institutions that are accessible to the poor households. Thus, proper regulation of the financial sector that is inclusive of the poor could then lead to a positive impact of financial development on welfare.

After assessing the impact of remittance, financial development and natural resources on welfare in Africa as a whole, we conduct analysis for regional groupings. We first conduct analysis for Sub-Saharan Africa (SSA) and North Africa (NA) as shown in Tables 4.6 and 4.7 to know which natural resource indicator better represents a particular region. While the North African region is seen to have abundance of oil resources, it would thus be interesting to know how these countries have capitalised on the abundance of natural resources in improving welfare. It would also be interesting to know how remittance inflows differs in regional terms

and how they can impact welfare. We follow the procedure as in Table 4.3 in choosing the resource indicators for the regions. This helped us to come up with final estimation for both SSA and NA adding the controls as seen in Table 4.8.

The results of these estimates using M2 as a financial development indicator are presented in Table 4.6. Consistent with the previous results, the findings show that previous year's improvement in welfare improves current welfare. Interestingly, the findings show mixed results for the impact of remittances especially for the SSA. When oil and gas rents are used as natural resource indicators as seen in models 23 and 25, remittances tend to have a positive and significant impact on welfare. However, remittance is seen to reduce welfare as it has a negative impact on HDI when forest rents (Forest), mineral rents (Mineral) and total value weighted rents (Rents) are used as natural resource indicators. Thus, based on the natural resource indicator used, remittance tend to have mixed impact on welfare in SSA. Again in the SSA region, financial development as measured by M2 has a significant positive impact on welfare at 10% significance level in all the models. Interestingly none of the natural resource indicator was seen to have an effect on welfare. Based on this, in the subsequent models of SSA, we maintain the ratio of mineral rents to GDP (Minerals) as our resource indicator for the SSA region. For the North African (NA) region, remittances have a significant negative impact on welfare no matter the resource indicator used. This suggests that in NA, remittance does not improve welfare. Similar to that of the SSA, financial development as measured by M2 has a significant positive impact on welfare, however in this case in only models 23, 24 and 25 but has a positive but insignificant impact on welfare in the remaining models. Unlike the results in SSA, for the NA region, Oil rents was seen to have a positive and significant impact on welfare.

Table 4.6: Impact of Remittances, Financial Development (M2) and Natural Resource Rents on HDI in African Regions, 1990 -2012

	Model (23)	Model (24)	Model (25)	Model (26)	Model (27)
L.HDI	0.9906 *** (3.58)	1.0686 *** (7.17)	0.9268 *** (3.19)	1.0363 *** (7.60)	1.0483 *** (7.35)
Remit*SSA	1.2352 * (1.66)	-0.2520 *** (-2.62)	1.2548 * (1.71)	-0.2433 ** (-2.54)	-0.2481 *** (-2.58)
Remit*NA	-3.6407 *** (-3.22)	-5.6865 ** (-2.33)	-3.7544 ** (-2.50)	-3.5335 ** (-2.48)	-3.8180 *** (-3.64)
M2*SSA	0.2971 * (1.92)	0.2149 * (1.78)	0.3023 * (1.75)	0.2115 * (1.87)	0.2232 ** (1.99)
M2*NA	0.1130 ** (2.35)	0.1564 *** (3.23)	0.1269 ** (1.97)	0.0029 (0.02)	0.0902 (1.64)
Oil*SSA	0.1049 (0.65)				
Oil*NA	0.4001 * (1.66)				
Forest*SSA		-0.0260 (-0.05)			
Forest*NA		17.5162 (1.03)			
Gas*SSA			1.4662 (1.55)		
Gas*NA			0.4918 (0.15)		
Mineral*SSA				0.1689 (1.20)	
Mineral*NA				1.8871 (0.76)	
Rents*SSA					0.0531 (0.47)
Rents*NA					0.3740 * (1.78)
Country effect	YES	YES	YES	YES	YES
Year effect	-0.00006 ** (-2.02)	-0.00004 (-1.57)	-0.00002 (-0.23)	-0.00003 (-1.30)	-0.00005 * (-1.68)
Num. Obs.	515	872	518	872	872
AR(1): P-value	0.038	0.002	0.008	0.001	0.002
AR (2): P-value	0.692	0.961	0.600	0.351	0.396
Hansen J: P-value	0.598	0.618	0.455	0.622	0.689

Source: Based on computations from research data, 2014. Estimation is by one-step system GMM with robust standard errors. * Significance at 10%, ** Significance at 5%, *** Significance at 1%

The total value weighted rents (Rents) also had a significant positive impact on welfare. Thus, it can be seen that the NA region is able to utilise the natural resource wealth to improve welfare better than that of the SSA region. As this preliminary results was to help indicate the effective natural resource that improves welfare for a particular region, we however do further analysis adding the controls (see Table 4.8) to help make conclusions. We then use Credit as a financial development indicator to help in our estimation in choosing the natural resource indicators for the regions. The results of these estimates are presented in Table 4.7.

Again, the findings show that previous year's improvement in welfare improves current year's welfare. Similar to the results obtained when M2 was used to assess the Sub-Saharan African (SSA) region, remittance again shows mixed results for the SSA region depending on the natural resource indicator used. When Oil and Gas are used (see models 28 & 30), remittance is seen to have a significant positive impact on welfare. Remittance is however seen to have a significant negative impact when the other indicators of natural resource rents are used. Again, unlike the results for M2 which showed to have a significant positive impact on welfare in all models, Credit only showed to be significant in two models (see models 28 & 30). Still in the SSA region, Gas was seen to have a significant positive impact on welfare at 1% significance level while Mineral also had a significant positive impact on welfare at 5% significance level. These were the only two indicators of resource rents that showed to have an impact on welfare when Credit was used. Based on this, we can say that depending on the financial development indicator used, the impact of resource rents in the SSA may differ. Thus, while none of the resource rents indicators showed any impact on welfare when M2 was used, Gas and Mineral showed to have a significant positive impact on welfare when Credit was used.

In the NA region, remittance is still seen to have a negative impact on welfare. Thus, whether M2 or Credit is used in the models, Remit in the NA region negatively impacts on welfare. Again, in the NA region, Credit showed up to have a significant positive impact on welfare in Models 29 & 30 at 10% and 5% significance levels respectively. While it had a negative impact on welfare in Model 31. Thus, in the North African region, while M2 showed positive and significant impact on welfare in three models, Credit on the other hand had a positive impact on welfare in two models and even a negative impact on welfare in Model 30 when Gas was used. Similar to that of the SSA, in NA, M2 is seen to be the better channel through which financial development improves welfare. When it comes to natural resource wealth, Oil and Mineral had a significant positive impact on welfare at 1% significance levels while Rents also had a significant positive impact on welfare at 5% significance level. Interestingly, Gas was seen to have a negative impact on welfare. Again, it is generally seen that the NA region is better in using its natural resources in improving the welfare of the people.

Based on these results, in choosing the natural resource indicator for SSA we use Minerals as it showed up to have a significant positive impact on welfare when Credit was used and to remain consistent with the earlier results of the African region as a whole. For the NA region, we use Oil as it showed up to have a more significant positive impact when either Credit or M2 was used. As a check of robustness and to compare with the earlier results obtained, we then use mineral rents for both SSA and NA regions so we can make comparisons with the earlier results. We then add the controls to the selected variables that represents each region to test whether the explanatory power of these variables will remain. The results of these estimates are presented in Table 4.8.

Table 4.7: Impact of Remittances, Financial Development (Credit) and Natural Resource Rents on HDI in African Regions, 1990 -2012

	Model (28)	Model (29)	Model (30)	Model (31)	Model (32)
L.HDI	1.0537 *** (4.37)	1.1136 *** (10.98)	1.0199 *** (4.39)	1.0819 *** (10.82)	1.0897 *** (10.97)
Remit*SSA	1.5270 * (1.84)	-0.2241 ** (-2.17)	1.4357 * (1.88)	-0.2160 ** (-2.08)	-0.2154 ** (-2.02)
Remit*NA	-3.9717 *** (3.64)	-5.5060 *** (-3.19)	-2.3432 ** (-2.00)	-2.3864 ** (-2.48)	-4.0156 *** (-3.37)
Credit*SSA	0.1891 ** (2.05)	0.0706 (0.93)	0.1746 ** (1.98)	0.0407 (0.57)	0.0739 (1.00)
Credit*NA	0.1156 (1.45)	0.1230 * (1.72)	0.1517 ** (1.99)	-0.3386 *** (-3.69)	0.0756 (1.07)
Oil*SSA	0.1991 (1.21)				
Oil*NA	0.5888 *** (2.61)				
Forest*SSA		0.2100 (0.60)			
Forest*NA		13.7407 (1.15)			
Gas*SSA			2.9325 *** (2.67)		
Gas*NA			-3.6310 * (-1.67)		
Minerals*SSA				0.2922 ** (2.06)	
Minerals*NA				6.1265 *** (4.13)	
Rents*SSA					0.1265 (1.39)
Rents*NA					0.4910 ** (2.56)
Country effect	YES -0.00007 **	YES -0.00002	YES -0.00001	YES -0.00001	YES -0.00005 **
Year effect	(-2.44)	(-1.04)	(-0.25)	(0.65)	(-2.06)
Num. Obs.	514	869	517	869	869
AR(1): P-value	0.025	0.001	0.006	0.001	0.002
AR (2): P-value	0.653	0.977	0.869	0.570	0.504
Hansen J: P-value	0.392	0.522	0.477	0.448	0.508

Source: Based on computations from research data, 2014. Estimation is by one-step system GMM with robust standard errors. * Significance at 10%, ** Significance at 5%, *** Significance at 1%

Again, the findings show that previous year's improvement in welfare improves current year's welfare. In SSA region, the impact of remittance on welfare is ambiguous. Depending on the specification of the model, remittance either improves welfare or reduce welfare. When Oil rents are considered as a measure of natural resource wealth in the NA region (see models 33 & 34), the remittance for SSA tend to have a positive impact on welfare. When minerals are used for the NA region, the impact of remittance on welfare is negatively significant (see model 35) but insignificant in model 36. This indicates that in the SSA region, remittance can either be effective in improving welfare or can reduce welfare depending on the model specification. As explained earlier, when the impact is positive, it explains that remittance received can be effective in directly lifting people out of poverty or improve their welfare. This supports the argument of studies like Gupta et al. (2009), Acosta et al. (2008), Vargas-Silva et al. (2009) and Adams and Page (2005) who indicate that remittance inflows reduce poverty. Further, when the relationship is negative, it suggests that the monies received from abroad are either benefiting the rich (Lipton, 1980, Stahl, 1982, & World Bank, 2007) who mostly are the ones who afford to migrate or it means that the monies received are generally used in unproductive ventures (Caceres & Saca, 2006) or are conspicuously consumed (Chami et al., 2003). This was particularly the case for the NA region (see models 35 & 36), where remittance was seen to only reduce welfare. Thus the SSA region may be better at receiving remittance than the NA counterparts. This may intuitively be the case as the NA counterparts have higher levels of Human Development than the SSA region further explaining the arguments of Lipton (1980), Stahl (1982) and World Bank (2007) who indicate remittance would just benefit the rich household in this region than the poor household leading to further inequality.

Similar to the results for the whole continent, the explanatory power of M2 reduced as it had no impact on welfare either in the SSA or NA regions. This indicates that, real money balances

does not have a direct impact on welfare. Credit again showed up to have a negative impact on welfare especially in the SSA region in both models 34 and 36 at 5% and 1% significance levels respectively. Thus, total credit provided to the private sector in SSA reduces welfare rather. As explained in the results for the continent, this may be the case that the cost of credit to the poor is expensive hence the rich tend to generally benefit from formal credit. This supports the argument in literature (Greenwood and Jovanovic, 1990; Haber et al., 2003; Bourguignon & Verdier, 2000) that development of the financial sector through the credit channel may benefit the rich rather than the poor because of the high cost associated with acquiring credit.

Also, the results show that in the SSA region, minerals had an ambiguous impact on welfare. While in models 33 and 34, minerals were seen to reduce welfare, in models 35 and 36 they have no impact on welfare. This shows that natural resources in the SSA region have not been utilised to benefit the poor. This concludes the argument of Hinojosa et al. (2010) who indicate that countries with resource abundance have failed to utilise their resource wealth in improving the welfare of their citizenry. This further supports the findings of Weszkalnys (2009) who find that contrary to the expectation of the theories of the political economy of oil among economists and political scientists for natural resource (oil) to bring prosperity, stability, and a kind of (lopsided) development to Africa, oil appears to have prevented African producers from developing, instead inflicting instability and violence. He indicate that this is similar to countries that are also dependent on minerals and other forms of natural resources.

However, the situation in the NA region is quite different. While the region has not maximised the use of its minerals (see Models 35 & 36), their oil rents had a significant positive impact on welfare at 1% significance levels in models 33 and 34. Thus, while governments in the NA

region have also not utilised its mineral to benefit the poor, the region is seen to improve the welfare of the people through their oil rents. This supports the findings of Pineda and Rodriguez (2010) who found evidence that changes in human development are positively and significantly correlated with natural resource abundance. This suggests that the extractive industries sector could contribute to human development. The ambiguous impact of natural resource in both the SSA and NA depending on the resource indicator used supports the view of Mendoza et al. (2015) who suggest that natural resource wealth is a ‘double-edged sword’. Indeed, this wealth could spur rapid and inclusive development, or it could stifle economic diversification, and breed dependence, corruption and social and macroeconomic vulnerability.

As obtained for the whole continent, worsening institutional quality (POLI) tend to reduce welfare. FDI inflows (FDI) improves welfare at 10% and 5% significance levels when M2 and Credit are used respectively. As explained earlier, this indicates that inflows of FDI directly improves welfare in Africa. ODA reduce welfare (see models 33 & 34) and in some cases (see models 35 & 36) had no impact on welfare. Thus, Aid has not been effective in improving the welfare of the people. The development of infrastructure (Telephone) increases welfare showing that improvement in infrastructure in Africa can help improve the general welfare of the citizenry.

Table 4.8: Impact of remittances, financial development and natural resource rents on HDI in African Regions with controls, 1990 -2012

	Model (33)	Model (34)	Model (35)	Model (36)
L.HDI	0.6837 ** (2.53)	0.6822 *** (2.60)	0.9479 *** (6.84)	0.9041 *** (7.58)
Remit*SSA	1.8330 * (2.29)	1.7161 ** (2.10)	-0.1278 * (-1.73)	-0.0667 (-0.89)
Remit*NA	-1.0007 (-0.06)	0.0913 (0.07)	-3.5062 *** (-2.65)	-2.0678 *** (-3.43)
M2*SSA	0.0761 (0.48)		0.0767 (0.65)	
M2*NA	-0.0284 (0.56)		0.0509 (0.33)	
Credit*SSA		-0.1758 ** (-2.10)		-3.2122 *** (-3.55)
Credit*NA		-0.0289 (-0.53)		-0.2297 ** (-2.53)
Mineral*SSA	-0.4611 ** (-2.21)	-0.4425 *** (-2.58)	0.0364 (0.29)	0.0668 (0.55)
Mineral*NA			-0.1102 (-0.05)	2.4376 (1.51)
Oil*NA	0.7248 *** (0.31)	0.8399 *** (4.11)		
POLI	0.0091 (0.89)	0.0032 (0.42)	-0.0118 ** (-2.10)	-0.0139 *** (-2.71)
FDI	-0.0295 (0.37)	-0.0618 (1.18)	0.0685 * (1.88)	0.0575 ** (2.11)
ODA	-0.6542 * (-1.82)	-0.7345 *** (-3.24)	0.0843 (0.75)	0.0563 (0.54)
Telephone	0.0006 *** (2.68)	0.0007 *** (3.44)	0.0003 ** (1.96)	0.0006 *** (3.19)
Country effect	YES	YES	YES	YES
Year effect	0.00004 (0.69)	0.00008 (1.26)	0.00003 (1.12)	0.00007 ** (2.04)
Num. Obs.	511	511	868	866
AR(1): P-value	0.037	0.027	0.001	0.002
AR (2): P-value	0.603	0.567	0.649	0.696
Hansen J: P-value	0.236	0.176	0.466	0.519

Source: Based on computations from research data, 2014. Estimation is by one-step system GMM with robust standard errors. * Significance at 10%, ** Significance at 5%, *** Significance at 1%. Robust Z-statistics in parenthesis.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter comprises the summary of the findings and the conclusions of the study. It also makes recommendations that can be drawn from the study.

5.2 Summary of Findings

In chapter 4, the data were analysed to achieve the research objectives. More specifically, the research examined the correlates of poverty, exploring the roles of remittances, financial development and natural resources. As noted in literature, recent empirical papers have obtained mixed results regarding the various correlates of poverty. This study examined this empirically by examining remittances, financial development and natural resources jointly in the same models. The study then uses the Human Development Index as a comprehensive measure of poverty or welfare as used by Gohou and Sumoure (2012) who examined the impact of FDI on poverty.

To meet the study's objectives, this study uses 54 African countries, from 1990 to 2012. The GMM estimation technique was used to assess this relationship. The main independent variables of interest were remittances, financial development as measured by M2 and Credit and natural resource wealth measured by: the ratio of oil rents to GDP (Oil), ratio of forest rents to GDP (Forest), ratio of gas rents to GDP (Gas), ratio of mineral rents to GDP (Minerals) and total value weighted rents as a ratio of GDP (Rents). The control variables introduced to the models were ratio of Foreign Direct Investment (FDI) to GDP (FDI), ratio of foreign Aid

to GDP (ODA), institutional quality variable proxied with Political rights (POLI) ranking and infrastructural variable measured with the number of fixed and mobile phones per 100 inhabitants (Telephone). These were tested to know their impact on poverty/welfare as measured by the Human Development Index (HDI)

The findings revealed that on average HDI for Africa is 0.45 showing that Africa's human development is still on the low side. The results further show that, remittance inflows over the study period was almost as much as FDI but below Aid inflows. Again, M2 formed a higher portion of GDP than did total credit to the private sector. With the natural resources, Oil rents formed the most part of GDP than the other resource rents with gas rents being the lowest. Also, the result show that Africa do not have strong political institution.

In all the estimation, it was confirmed that previous year's improvement in welfare or poverty leads to improvement in current year's welfare of the people. This confirms the dynamic nature of our specification hence justifying our choice of estimation technique. The initial estimations without the controls reveal that for natural resource most of the indicators except mineral rents had no impact on welfare indicating African governments' inability to maximise their resource wealth in improving the welfare of the people. Hence, we used mineral rents as the proxy for natural resource in Africa. However, for the results for the regional groupings, we find that minerals was a better representation for Sub-Saharan Africa while for North Africa we used both oil rents and mineral rents.

The results revealed that, in Africa, remittance reduced welfare. We identified that, remittance could effectively be used to improve the welfare of the people when interacted with access to credit to the private sector. Thus, remittance was only effective in improving welfare when

those receiving remittance had wider access to formal credit. In examining the direct impact of financial development on welfare, we compared the effective channel, thus, either through M2 or through Credit to the private sector. This was done to test the McKinnon's (1973) conduit complementary hypothesis which indicate M2 to be effective in this direction. We find that M2 has no direct impact on welfare while Credit directly reduce welfare. This, supports evidence that development of the financial sector may tend to benefit the rich rather than the poor mostly because of the costs associated with accessing credit. Further analysis revealed that, the regulatory environment could solve this problem. Natural resource wealth on the other hand had no impact on welfare supporting earlier arguments that African countries have not been able to harness their resource wealth to benefit the people.

In order to meet our second research objective, we examined the transmission channels that our main variables, remittance, financial development and natural resources, can impact poverty. As indicated earlier, remittance was seen to better improve welfare when transmitted through the financial sector specifically credit to the private sector. No evidence was found to support the effective transmission of remittance on welfare through institutional quality. On financial development, we find that proper regulation of the financial sector that is inclusive of the poor would help the development of the sector to improve welfare. Again, Credit provided to the private sector was better at complementing remittances to improve welfare in Africa. For natural resource, we find no evidence to support its transmission through either financial development or institutional quality.

On the controls, the results consistently showed that increase in FDI inflows improves welfare in all models. Interestingly, Aid which showed to be the highest inflow than remittance and FDI had no impact on welfare. This supports arguments that foreign aid is not effective in

reducing poverty or improving welfare. The results again consistently showed that stronger institutions improves welfare directly. The results also showed that improvement in infrastructure consistently improve welfare.

In order to meet our third research objective, we examined whether there are regional differences in the remittance, financial development and natural resource relationship with poverty. First, we find that minerals was a better representation of natural resource wealth for Sub-Saharan Africa while for North Africa we used both oil rents and mineral rents. The results revealed that, the relationship between remittance and poverty in the Sub-Saharan African (SSA) region is ambiguous. While in some models remittance showed a direct positive impact on welfare in others it showed up to be negative. This was the case when the different resource indicators were used in separate models. Particularly, remittance showed up to improve welfare only when oil rents is used as resource indicator for the North African region. Thus depending on the specification of the model, the impact of remittance on welfare may change. Again, consistent with the results obtained for the whole Africa, M2 had no impact on welfare. Credit again, was seen to reduce welfare in both the SSA and NA regions but mostly in the SSA region. This supports earlier arguments that provision of credit may tend to benefit the rich rather than the poor. The results revealed that the SSA region has not been effective in using its resource wealth to benefit the people as it reduced welfare and some cases had no impact on welfare. The NA region was however seen to be better in using the oil rents to improve welfare.

5.3 Conclusion

In concluding, the results show that in Africa as a whole, remittance reduce welfare directly supporting arguments that mostly the rich can afford to migrate and thus remit more to their

families than the poor and that remittance received may not be used in productive ventures. This was mostly seen in the North African (NA) region where remittance was consistently seen to reduce welfare. The direct impact of remittance in the Sub-Saharan region was ambiguous depending on the specification of the model. However, remittance was seen to be effective in improving welfare when there is better or wider access to credit by the recipients of the remittances, thus, when interacted with total credit provided to the private sector. The results for the continent also revealed that, the impact of financial development on welfare was ambiguous. While M2 had no impact on welfare, credit to the private sector reduced welfare directly. This supports arguments that credit may tend to benefit the rich than the poor because costs associated with obtaining credit in Africa may be expensive for the poor. This was especially so in the Sub-Saharan Africa (SSA) region. Further analysis revealed that, the regulatory environment could solve this problem. Thus, proper regulation of the financial sector that is inclusive of the poor could then lead to a positive impact of financial development on welfare. However, credit to the private sector was effective in improving welfare indirectly when it complements remittances. The continent as a whole has failed to utilise its natural resource wealth (minerals) to benefit the poor as it showed no impact on welfare. This supports arguments of African governments' failure to harness their resource wealth to benefit the poor. This was particularly so for the SSA region while for the North African region, its oil rents was effective in improving the welfare of the people. On the controls, FDI was seen to improve welfare while foreign aid had no impact on welfare and even in some cases a negative impact. Stronger institutions were seen to consistently improve welfare. Development of infrastructure was seen to improve welfare.

Our findings are robust in showing the applicability of our basic findings to a variety of changes in specifications, variable definitions and data subsets. In line with these our

robustness tests account for different measures of financial development, natural resource wealth and introduction of additional controls. It is also robust in examining the regional differences.

5.4 Recommendations

Based on the findings and the conclusions drawn, we make the following recommendations:

Financial institutions should be encouraged to design credit targeted at the poor thus by reducing the cost of interest charged on loans to help them access these financial services as generally credit to the private sector is seen to support the top.

Also, regulatory requirements in financial sector should be looked at to be more inclusive of the poor. Tighter regulations that are not inclusive of the poor may only lead to barriers for the poor to access financial services.

African governments especially those in the Sub-Saharan region should implement policies that would maximise the effective use of their natural resource wealth (minerals) in benefiting the poor to improve their welfare.

Governments should provide the good atmosphere to encourage foreign direct investment while investing in infrastructure of the country as they improve welfare directly. Foreign aid has not been effective in tackling poverty hence better policies should be implemented and proper channels identified to see the intended effect of the massive inflows of Aid to Africa.

Further studies should be conducted to particularly examine the long run relationship of remittances, financial development and natural resources with HDI and in terms of natural

resource indicators that drive exports can be considered apart from the rents as ratio to GDP as used in this study.



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APPENDIX

Regional Grouping		
	<u>Sub-Saharan Africa</u>	<u>North Africa</u>
Angola	Malawi	Algeria
Benin	Mali	Djibouti
Bostwana	Mauritania	Egypt
Burkina Faso	Mauritius	Libya
Burundi	Mozambique	Morocco
Cameroon	Namibia	Tunisia
Cape Verde	Niger	
CAF	Nigeria	
Chad	Rwanda	
Comoros	Sao Tome and Principe	
Congo DR.	Senegal	
Congo R	Seychelles	
Cote D'Ivoire	Sierra Leone	
Equitoria Guinea	Somalia	
Eritrea	South Africa	
Ethiopia	South Sudan	
Gabon	Sudan	
The Gambia	Swaziland	
Ghana	Tanzania	
Guinea	Togo	
Guinea Bissau	Uganda	
Kenya	Zambia	
Lesotho	Zimbabwe	
Liberia		
Madagascar		