FOREIGN AID AND ECONOMIC DEVELOPMENT IN SUB SAHARAN AFRICA: THE

ROLE OF INSTITUTIONS

(1996-2010)

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ABSTRACT

This study examined the relationship between foreign aid and economic development in sub Saharan Africa. The study seeks to examine the role of institutions in aid effectiveness and economic development in Sub Saharan Africa. The study adopted a theoretical framework similar to the Endogenous or New Growth model, as well as; the system generalized method of moments (GMM) technique of estimation was adopted in order to overcome the challenge of endogeneity perceived in the institutions variables and Aid growth argument. It was observed that foreign aid significantly influence Real GDP Per Capita (the proxy for economic development) in Sub Saharan Africa. Also, variables like gross fixed capital formation, rule of law, control of corruption (which are proxy for institutions) and Human capital had a significant effect on Economic development in sub Saharan Africa while labour had no significant effect on economic development in Sub Saharan Africa.

CHAPTER ONE

INTRODUCTION

1.1 Background To Study

Most African countries are characterized by massive poverty, high death rate, slow GDP growth, high population growth rate and increased income inequality, increased absolute poverty rate, low educational standards, low human development index to mention a few. According to development statistics, in Africa, about 1.2 billion people live on less than $1 a day and another 2.8 billion people live on less than $2 a day. This is also a similar case in health as the mortality rate has sky rocketed over the years as declared according to the UNICEF who stated that more than 10 million children die each year from preventable disease such as malaria, polio to mention a few (Emmanuel, 2012; Ogundipe and Ogundipe, 2013). Another scenario in developing countries is that the child mortality rate remains more than 10 times higher than those found in the rich countries and this is as a result of diseases that can be treated easily like dehydration (Todaro and Smith, 2011).

In examining human capital development via education, Africa is in deteriorating conditions. The average child in sub Saharan Africa can expect to spend less than 5 years in school, without even considering absenteeism of teachers and lack of resources like books. This is in deep contrast with a child in Europe who is sure to get at least 12 years of schooling. Also, the education gender gap is especially great in developing countries in Africa, where female literacy rates can be less than half of men's in countries such as Nigeria, Mali, Guinea, Benin to mention a few. Sub Saharan Africa and even Africa as a whole have been seen to exhibit relatively low levels of income despite the fact that they are heavily populated. Sub Saharan Africa received

just two percent of total shares of Global income in the year 2008. According to Todaro (2011), In the case of income inequality and absolute poverty which is a major topic in development economics, the incidence of extreme poverty is very high as released by the World Bank's estimate that the share of the population living on less than $1.25 per day is 41.1% in sub Saharan Africa. Population growth rate of developing countries especially in Africa continue to grow in leaps and bounds. From 1990 to 2008, population in the low income countries grew at an average of 2.2% per year. The main issue is that there has been a case of heavy debt servicing and it has been observed that most funds in Africa go into servicing debts. (Todaro and Smith, 2011)

Also, literature reviews have shown that during the 80s, averagely, in sub Saharan Africa, per capita income fell at an annual rate of 2.2 percent. According to Bakare (2011), Per capita private consumption also dropped by 14.8 percent, import volume rose at an annual rate of 4.3 percent with export volume remaining constant with terms of trade falling by 9.1 percent. Given the high population growth rate, annual real GDP per capita growth rate between 1981 and 1990 was –0.9% which was contrary to East Asia's performance of GDP per capita growth rate of 6.3% during that period. Still the economic performance of Sub Saharan Africa did not improve in the early 90s as confirmed that between 1991 and 1993, real per capita GDP was 2.3% annually. In 1994, it still remained negative at -0.7%. Luckily, in 1995, this became positive reaching 1.1% which was still lower than the 8.0% growth rate testified by East Asia. The World Bank classified 74% of the countries of SSA as low income economies while the United Nations Development Programme classified 79% of SSA as low human development countries. Lastly, according to World bank (1998), out of the 41 countries in the world classified as heavily

indebted countries by the World Bank and international monetary fund, 80% are in sub Saharan Africa (SSA) (Bakare A.S, 2011).

From the above illustrations, it has been obvious that Africa (more specifically, sub Saharan Africa) cannot develop on their own and they need all the help they can get. As a result, foreign aid comes to foreplay. Foreign aid can be defined as all resources- physical goods, skills, technical know-how, financial grants, or loans (at concessional rates) transferred by donors to recipients (Riddell 2007). According to the Development Assistance Committee (DAC) of the Organization for economic cooperation and development (OECD), foreign aid is defined as official development assistance (ODA). According to DAC, aid qualifies as ODA on three criteria:

1) It has to be undertaken by official agencies and flows have to go to developing country government

2) It has to have the promotion of economic development and welfare as its main objective, thus excluding military aid and private investment

3) It has to have a grant element of twenty five percent or more at a ten percent discount rate

It was stated in some economic theories that capital formation was the basic problem of developing countries with Africa being one of them and so aid is important as it play a vital role in capital formation which is essential for economic growth. The objectives of foreign aid have been to end extreme world poverty, increase savings and investment and achieve development in developing economies (Eroglu and Yavuz) and this is exactly what Africa needs. According to literature reviews, foreign aid is deemed important to the development of Africa as it is a means of increasing capital for economic growth and investment, reducing poverty and raising the

standard of living of persons, contributing to the transfer of skills, technologies and production methods, increasing product diversity and generates employment (OECD-DAC 1999),(Bakare, 2011)

Morrissey (2001) also stated that there were a number of mechanisms through which aid can contribute to economic growth including:

1) Aid increases investment in physical and human capital

2) Aid increases the capacity to import capital goods or technology

3) Aid does not have indirect effect that reduces investment or savings rate

4) Aid is associated with technology transfer that increases the productivity of capital and promotes endogenous technical change.

It is therefore ironical to note that despite the fact that ODA has been pumped into Africa mostly into sub Saharan Africa yet there is no evidence of real economic development or if there has been as some economic researchers claim, there is small impact compared to the whole which can be described as the micro-macro paradox (Paul Mosley, 1987 as cited in Aid, Growth, Development, Channing Ardnt, et al). Instead there has been slow economic growth, high levels of unemployment, absolute poverty, low GDP per capita levels, etc to mention a few.

According to OECD (2009b), in 2008, total net ODA from members of DAC rose by 10.2 percent in real terms to US$119.8 billion and were expected to rise in 2010 by US$130 billion. Africa is the largest recipient of foreign aid. This can be illustrated according to the example given by Ekanayake and Chatrna: net bilateral ODA from DAC donors to Africa in 2008 was a total sum of US$26 billion, of which US$22.5 billion went to sub Saharan Africa. Bilateral aid

(excluding volatile debt relief grant) to Africa and Sub Saharan Africa rose by 10.6 percent and 10 percent respectively in real terms.

According to MC Gillivray, et al. (2006), there are four main views on the effectiveness of aid: aid has decreasing returns, aid effectiveness is limited by external and climatic conditions, aid effectiveness is influenced by political conditions and aid effectiveness depends on institutional quality. The question on the role of institutions have come up in debates on economic development and is fast gaining grounds as Aid has been said to be more effective in high quality public institutions (Burnside and Dollar, 2000).

The World Bank reports in 2004 showed that there has been a reduction in the amount of foreign aid directed to developing countries on this measure, rich countries reduced their aid contributions from around 0.34% to 0.23% of their output between 1990 and 2002. The reason for this can be attributed to several reasons ranging from economic to political changes (Hopkins 2000, Robinson and trap 2000.). However, the main reason for this "aid-fatigue" can be attributed to the fact that aid has failed to some large extents as there have been reports of corruption and poor administration, with aid management tying up valuable resources in recipient countries (Kanbur, 2000). Some researchers have argued that a large portion of foreign aid flowing into the country is wasted on unproductive public consumption, corruption and inefficiencies and this is as a result of poor institutional quality and bad governance.

1.2 Statement of the Research Problem

Without a speck of doubt, it is seen that foreign aid has failed in Africa and sub Saharan Africa and this has been fully backed up by statistics. Despite the different forms of aid, most especially the ODA, sub Saharan Africa has not progressed to a meaningful stage of development. As home

to a large proportion of the world's "bottom billion," Sub-Saharan Africa has attracted substantial amounts of foreign aid over the years. ODA flows to the continent currently stand at around $80 billion per annum and the figure is projected to reach $125 billion by 2010. Over the last five decades, foreign aid to governments in Sub-Saharan Africa amounted to $1 trillion. Ironically, at the same time period, growth of GDP per capita in Africa actually registered a marked decline and was for many years even negative.GDP per capita figures also declined across most of Sub- Saharan Africa asides a few countries. For example, World Bank calculations show that based on the predictions of theories, foreign aid transfers to Zambia, which began in the 1960s, would have by today pushed per-capita income to over $20,000. However, reverse is the case as Zambian income per capita has stagnated at around $600 for years (Farah Abuzeid). This provides a vivid illustration of the failures of foreign aid in sub Saharan Africa.

Over the years, according to World Development Indicator (WDI) data, ODA as a percentage of total world's ODA for Sub Saharan Africa has increased and yet economic growth rate has not increased. In 1980, 23.392% of total world ODA was pumped to SSA but the economic growth rate was just 1.135% in that year. The percentage increased to 28.577% in 1985 but economic growth rate declined to -1.157% in that same year depicting a negative growth rate. ODA further increased to 29.328% of total world percentage but there was still no positive growth rate as the economic growth rate still was at a negative of -1.565%. This is unlike the story of other countries on the table, say China whose total ODA as a percentage of the world's total ODA was not as high as that of Sub Saharan Africa and yet her economic growth rate was higher than that of Sub Saharan Africa. In China, as the percentage of ODA (Official Development Assistance) increased from 0.190% in 1980 to 2.919% in 1985, economic growth rate increased from

approximately 6% in 1980 to 12% in 1985 thus showing that as ODA doubled in its rate, the economic growth rate also reciprocated by doubling too implying that foreign aid in form of official development assistance was effective in accomplishing growth. The irony is that in Sub Saharan Africa, when ODA reduced to 27.529% of total world percentage, economic growth rate became positive and grew to 1.091%. All these go further to interpret that the as the ODA pumped to Sub Saharan African Countries increased, economic growth rate declined. This shows that aid has not been very effective, at least in Sub Saharan Africa.

The topic of aid effectiveness has been a subject of debate to many economists and different reasons ranging from economic to social and even, political factors have been given as to the question of why aid has failed. The main or major reason accounted for has been attributed to poor institutional quality and bad governance. In fact, to show the importance of the role of institutions, Keefer end Knack, (1997) said that good governance in the form of institutions is crucial for sustained and rapid growth in per capita income of poor countries. Aid is thought to work best with high quality institution presumably as a part of a capable developmental state (Burnside and Dollar 2000, world bank 1998). According to Dalgaard, Hansen, and Tarp (2004), the deep determinants of a society might play a big role in aid effectiveness and this points to institutional quality. Therefore, we can conclude that institutions have an essential role to play especially in aid administration for economic development in Sub Saharan Africa. In other words, good institutions should lead to a well ordered society which would lead to the effective use of foreign aid.

1.3 Research Objectives

The main objective of this research is to examine the relationship between aid and economic development in sub Saharan Africa. However, the other objectives will be listed in subsequent paragraphs below:

1) To examine the effect of foreign aid in sub Saharan Africa countries

2) To examine the Role of institutions the aid effectiveness.

3) To explain the effect of institutions on economic development in sub Saharan Africa.

1.4 Research Questions

The research objectives stated earlier necessitated the need for the research questions. Therefore, the research questions that need to be analyzed and answered to are as follows:

1) Does foreign aid have any significant relationship with economic development in sub Saharan Africa?

2) Do institutions have a role to play in aid effectiveness in sub Saharan Africa?

3) To what extent have institutions ensured economic development in sub Saharan Africa?

1.5 Research Hypothesis

Hypothesis 1:

H0: there is no significant relationship between foreign aid and economic development in sub Saharan Africa

H1: there is a significant relationship between foreign aid and economic development in SSA.

Hypothesis 2:

H0: institutions would not help in ensuring aid effectiveness in sub Saharan Africa

H1: institutions would help in ensuring aid effectiveness in sub Saharan Africa.

Hypothesis 3:

H0: institutions have no significant effect on economic development in sub Saharan Africa.

H1: institutions have a significant effect on economic development in sub Saharan Africa.

1.6 Significance of the Study

Economic development is crucial for any viable country. In fact, the importance or substance of a country is measured by her level of economic development. For developing countries, foreign aid has been seen as needed to promote economic development for such country. Sub Saharan Africa is seen as the highest ODA recipient in Africa but the countries within this region are characterized by very low per capita GDP and real GDP growth. Also, the country faces several challenges of political instability and institutional failure. As a result of these challenges, it is seen that foreign aid cannot be very effective in ensuring economic development. Moreover, most researches concentrate majorly on foreign aid and economic development without looking at the roles that institutions and policies play in the administration of foreign aid for economic development.

Therefore, this study is aimed towards examining foreign aid and economic development as well as the role of institutions and how they impact foreign aid and economic development. This study is also significant in the sense that it would help to give policy recommendations on how foreign aid can be channeled effectively for economic development in sub Saharan Africa.

1.7 Justification of Study

The justification for choosing to concentrate on SSA and the specific countries to be included into the sample is based on the conclusions of past studies on aid effectiveness (Wako, 2011). There have been different conclusions on the subject matter. Easterly (2003, 2005) point out that aid has been most ineffective in SSA based on the success of Asia and Latin America. Others, who advocate the (unconditional or conditional) success of foreign aid have also accepted that it has been less effective in SSA (Burnside and Dollar, 2000; World Bank, 1998). Other researchers like Riddell (1999) and Collier (2006) predict that the future playfield of aid is Africa. Kanbur (2000) also shares the idea that SSA is the region where the issues of aid and aid effectiveness remain unsettled yet

1.8 Scope of Study

To ensure proper representation of data, this study would be broadened to some selected countries in sub Saharan Africa base on the availability of data. The data gotten would cover a period of 15 years from 1996 to 2010. The data to be used in the course of this research would be gotten from world development indicators (WDI), Worldwide Governance indicators (WGI), OECD/DAC database.

1.9 Limitations of Study

The limitations in this research range from insufficient data to time constraint, scarcity of research facilities, transportation as well as inadequate funding of the research. Though these limitations did exist, they are not strong enough to invalidate this study and its findings.

1.10 Research Methodology

This study will involve empirical data analysis. The study will make use of the Generalised Method of Moments. The results obtained from data collected would help in achieving stated

objectives for the research. The underlying model for this study is the New Growth theory. Secondary data would be used in this study, particularly from World Development Indicator (WDI) data and from World Governance Indicator (WGI) data. The estimation period will cover 1996 to 2010.

1.11 Outline of Work

For easy analysis and assessment of the project, the study is structured into five chapters. The introductory chapter which gives a general overview to the study is followed by chapter two. The chapter presents the review of relevant literatures with respect to the research topic and relates economic theories to the subject matter of foreign aid and economic development. The trends of foreign aid in sub Saharan Africa were considered as well as some empirical findings in the subject area.

The third chapter focuses on the theoretical framework and research method. The Exogenous or New Growth model formed the basis for the inclusion of variables in the models. Chapter four constitutes empirical analysis- data presentation and statistical analysis using the Systems Generalized Method of Moments (GMM). The results obtained were presented and interpreted in the same chapter. Lastly, chapter five presents the summary of the major findings in the research study, policy recommendations of findings, suggestions for further study, limitations of study and conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.0 Definitional Issues on Foreign Aid

2.1 Concept of foreign aid.

There are diverse definitions of foreign aid and this has constituted problems in defining foreign aid because not all kinds of non-commercial international financial flows can be conceptually included as foreign aid. The term foreign aid is generally used in the sense of flow of resources from the rich countries to the poor under developed countries At some point, 'all real resource transfer' from developed to underdeveloped or developing countries were included as foreign aid and this raised conceptual problems because it includes certain resource transfer which do not essentially qualify as foreign aid. The resource transfers are as follows:

(i)   Preferential tariffs granted by the developed to the less developed countries amounts to "disguised" resource transfer, but it does not qualify as foreign aid;

(ii)   Flow of foreign private investment based also on non-commercial consideration should not be classified as foreign aid.

Capital flow from donors to recipients should have a non commercial motive from the viewpoint of the donor and it should involve concessions in interest rate and repayment terms. This definition is incomplete because it includes aid such as military aid, ad hoc financial support in case of natural calamities, and food aid in case of drought, and so on. According to Michael Todaro, The generally accepted and used definition of foreign aid is one that encompasses all official grants and concessional loans, in currency or in kind, that are broadly aimed at transferring resources from developed to less developed nations on development and income redistribution grounds."

According to the United Nations, economic aid means outright grants and long term loans for non military purposes by Governments and various international organizations. According to Mikesall, foreign aid is defined as a transmission of real resource from one country to another that normally won't take place as a result of the operation of market forces or in absence of specific official action put in place to promote such transfer from the donor country. Therefore foreign aid includes direct government transfers as well as those promoted by special official action such as government guarantees.

Riddell (2007) also defined foreign aid as comprising all kinds of resources ranging from physical merchandise, skills and technical know-how, financial grants including gifts, and loans which are given to recipients by donors at concessional rates. The Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) also defines aid as Official Development Assistance (ODA) which qualifies on three criteria:

1) it is to be undertaken by official agencies;
2) it is to have the main objectives of promoting economic development and welfare

3) It has to have a grant element of twenty five percent or more.

This study uses the DAC's (Development Assistance Committee) definition of foreign aid.

Advantages and Disadvantages of Foreign Aid

2.1.1 Advantages of Foreign Aid

The main problems of developing countries according to the early growth theories which existed in the 1950s and the 1960s was capital formation and these theories were of the opinion that development assistance was greatly needed as capital formation had a very important role to play in economic growth and development. The reasons given for these arguments were that these developing countries have insufficient private and public savings to finance large investments such as the development of economic and social infrastructure. Also, developing countries have few resources to finance in the form of foreign exchange the importation of machinery and other capital goods. As such, foreign aid was needed to fill the savings-investment gaps and the trade gaps by increasing the level of investment and thus economic growth. From 1980, there have been different objectives of providing foreign aid with the expected returns in form of economic growth, investment, poverty reduction and public expenditure in terms of services in the developing countries. Foreign aid also in form of technical assistance provides technical skills which have a positive effect on development and this is done by improving human capital quality and filling the skills gap.

Another advantage of foreign aid is that it helps the government to meets its development objectives by meeting up to her spending and expenses. Thus, foreign aid used for investment in education, health and other infrastructure contributes to economic growth and overall economic development. The programme aid which is also seen as import support helps to increase the production efficiency of both public and private enterprises which results into higher output and

increases the availability of goods and services. Also, foreign aid is known to be very essential for emergence reliefs in war devastated areas and areas affected by natural disasters such as flood, hurricanes, etc. Mostly, humanitarian aid has gone a long way to saving lives, provision of food to the poor and hungry, provision of free health care services to the sick and deprived, medicines for those vulnerable to diseases in emergencies (Conchesta, 2008). Lastly, foreign aid has helped in the settlements of debt overhangs in the developing countries and the remaining resources from debt cancellations can go a long way in performing some other functions of vital importance in such countries (Conchesta, 2008).

2.1.2 Disadvantages of Foreign Aid

Aid is seen to impose some negative effects also in the economy of developing countries. Project aid is noticed to distort spending patterns as aid recipient governments are supposed to cover the recurrent costs of project. Also the increase of numerous projects creates pressure to the already restricted capacity in developing countries. A study by Lane and Tornell suggests that in an economy with powerful groups but weak institutions, as is the case in many African countries, the heightened lobbying and rent-seeking activity that follows a resource windfall causes a more than proportional increase in redistribution. This aggressive effect will then yield a lower rate of return to the investment and a net social loss. According to Riddell (2007), Aid tying which is associated to project aid causes the exploitation of the developing countries because they are usually indebted to purchase items from the donor country. Foreign aid is also likely to lead to the appreciation of the real exchange rate of the developing countries and this result into rising domestic inflation. This is known to be the Dutch disease whereby an inflow of foreign exchange in form of export earnings, private capital inflows or foreign aid puts an upward pressure on the real exchange rate of the recipient developing country. Foreign aid may lead to the appreciation

of the exchange rate of the recipient country thereby reducing the competitiveness of the export sector.

Debt extensions and overhang is also a major problem in the developing countries. Despite the Highly indebted Poor countries initiatives and other reforms, countries are still under huge debt burdens. This has been attributed to the very high interest rates paid on loans for which a large share of their budget is used to pay such debts. There is also the fungibility of aid in developing countries and this leads to a limited impact on growth and poverty reduction (Pack and Pack, 1993). Fungibility of aid refers to the notion that donors provide funding for projects that address specific needs in the country for which the recipient government has already reserved resources from its own budget. The inflow of foreign assistance makes it possible for the recipient government to reduce its own allocation of resources in the sector that receives the ODA, and to reallocate those resources elsewhere. Although the concept of fungibility itself is not necessarily harmful, especially if the extra funds are reallocated into productive uses within the economy, fungibility is problematic because it increases the possibility of corruption and rent-seeking. The fungibility effect makes it easier for corrupt officials to reallocate and conceal some of the "surplus" funding into wasteful expenditures and fraudulent or overinflated procurement costs because at the end of the day the initial announced objectives of these government funds are still met using the funds coming from foreign aid (Conchesta, 2008). Aid also creates a "moral hazard" problem in the recipient country by serving as a permanent soft budget constraint. The persistent influx of easy foreign aid money creates the impression that the recipient government would be bailed out when things go wrong Foreign aid also enables resources to be used for other purposes where the recipient government can use the local taxes

and other sources of income for military weapons, extended oppressions and luxury consumptions (Degnbol and Pedersen, 2003).

2.1.3 Forms of Foreign Aid

1) Project Aid

Project aid is defined as resources allocated to specific set of activities which are well defined in terms of objectives, input and output. This kind of aid help in funding developing projects in different sectors of developing countries like the education, agriculture, health, power, transport sectors to mention a few because they are mainly in form of resources, skills and system which is very much needed. However, according to Conchesta (2008), this form of aid has reduced from the 1990s.

2) Programme Aid

Programme aid is defined by OECD as financial contributions not linked to specific activities (as cited in Riddell 2007). Programme aid is a financial assistance targeted particularly to fund imports, a programme of support for a sector or discrete elements of a country's expenditure. This form of aid mainly includes budget support, balance of payment support, debt relief in order to support the expenditure of recipient countries. Funds are usually accounted for based on balance of payment or government budget. Under the government budget, funds go into boosting revenue to finance expenditures and increasing overall spending.

3) Technical Assistance

Technical Assistance helps in the provision of skills, knowledge know-how and advice. This form of aid has been provided in primary and secondary education in recipient countries and this has been in form of teaching staff. Also, to meet developing countries' needs, specialized trainers have performed the job of skills training. Despite all the advantages of technical assistance, there

are still a lot of problems accompanied by it and this includes the increased cost (especially consultancy costs) of providing the assistance.

4) Humanitarian Aid or Emergency Aid

According to Conchesta (2008), this form of aid is given to relieve suffering, save lives during and after natural and manmade disasters (like war). This kind of aid involves the provision of vital services (like food aid) and fundings (like logistics or transport) through either the aid agencies or the government of affected countries. Humanitarian aid has gone a long way to providing food, saving lives, health care services and so on.

4) Food Aid

Food aid comprises of programme food aid and humanitarian food aid. Programme food aid may relieve the foreign exchange constraint to the import of the necessary intermediate inputs or by providing fiscal resources through counterpart funds generated by the local sale of programme food aid (Barret, 1998). These resources can be used by the recipient country to invest in agricultural research and extension and improvement of rural infrastructure. However, programme food aid may have Dutch disease effects on domestic food producers and thus hurting the food sector's competitiveness in the world markets (as cited from Conchesta, 2008)

2.1.4 Organizations That Give Foreign Aid (Foreign Aid Donors)

1) World Bank group

2) International Monetary Fund (IMF)

3) International fund for Agricultural Development

4) United Nations Development Programme (UNDP)

5) World Trade Organization (WTO)

6) United Nations Conference on Trade and Development (UNCTAD)

7) Organization for Economic Cooperation and Development (OECD)

8) African Development Bank (ADB)

9) International Bank for Reconstruction and Development (IBRD)

10) Multilateral Investment Guarantee Agency (as part of World Bank Group)

2.1.5 Trends of Foreign Aid in Sub Saharan Africa.

The flow of development aid to sub Saharan Africa has undergone different fluctuations over time. The exact trend of this fluctuation depends most importantly on the measure of aid flow adopted (Wako, 2011). Aggregate aid in constant US dollars rose steadily from 1960 to 1990 in the sub Saharan Africa region, followed by a considerable drop beginning from 1991 (ibid). This later recovered in 2001, with a sharp rise in 2005. Before the 1990s, flows of Net ODA and Net aid transfer were moving closely with Gross ODA though afterwards, there was the evidence of considerable divergences among the three measures (Wako, 2011). The divergence between Gross ODA and Net ODA explained the rise in the amounts of offsetting entries while that between NODA (net ODA) and Net Aid Transfer showed that there was an increase in the share of debt relief particularly in the form of pardoned accumulated interests in the aid to the region. it was noticed by Wako (2011) that the real flow of aid to the sub Saharan Africa region has declined over the years than what the records show us. Although, this report may not differ from other results which show aid effectiveness, it nullifies the validity of any argument based on a wrong variable; gross ODA or Net ODA (ibid). Contrary to the rise in volume of aid in dollar amounts, aid per capita generally followed a downward trend. The third alternative way of measuring aid entails the use of aid-to-GDP ratio. Regarding the pattern of NAT relative to

recipient's GDP, bilateral NAT and total NAT experienced more or less declining trends – particularly after 1994. Multilateral NAT experienced a slight rising trend between 1980 and 1994, then a slighter drop until 2000 and leveling off at about two percent of GDP .Between the period of 1980 and 1984, the convergence of bilateral and multilateral aids relative to GDP disappeared (Hassen Wako, 2011). The share of bilateral aid to the sample of countries in the region has generally been falling and that of multilateral aid has generally been rising. However, bilateral donors still remains the major sources of aid to these countries on aggregate though there are exceptions for some individual countries. The sub Saharan Africa region is still the largest recipient of aid no matter the type of aid observed sent to developing countries. Apart from 1998- 2001, where Asia received the largest share, Africa always secured the largest amount of aid (Wako, 2011).

Examining the donors of aid (both bilateral and multilateral donors), in terms of Net ODA, France was the leading donor from 1980 to 2001. After 2001, USA became the leading donor. By 2006, France was ranked third behind USA and UK. Also, most recently, other countries have joined the list of major bilateral donors including, Germany, Japan, the Netherlands, Italy, Belgium and Arab countries (OECD, 2006). Examining the major multilateral donors to the SSA region, World Bank has been the largest donor for most of the period from 1980-2006 approximately. Another strong donor is the European union which was the leading donor between 1980 and 1985 and took occasional leads in 1888, 1989, 1992 and 2006. For the period of 1980-2006, 2 multilateral donor- World Bank and European commission- accounted for about 65 percent of the total multilateral aid to SSA. On individual terms, the share of the World Bank which is about 33.5 percent is slightly above that of European commission which is about 30.5 percent. Also, it is understood that various factors could affect the allocation of aid among

recipients in SSA and as such, measures of aid including dollar amounts, aid/ GDP, aid per capita has been reviewed against each other. According to Wako (2011), the average share in the total Net aid transfer showed Tanzania and Ethiopia in first and second place respectively. However, through the data supplied by Wako (2011), the 10 recipients of aid could not stand the change of the measure of aid forms adopted. When aid to the GDP ratio or aid per capita was used as a measure, the list changed as Mozambique was one of the top ten recipients. No country according to Wako (2011) considered as a major recipient in terms of the percentage share out of the total NAT to SSA, appeared in the list of the top ten recipient countries when aid was measured using aid per capita criterion (ibid). Therefore, in general, using different measures of aid gave an inconsistent list of countries as the major aid recipients in sub Saharan Africa. Countries which were once at the top disappeared when "aid per capita 'or aid to GDP ratio' criterion was adopted. However, according to Wako (2011), the disturbance or inconsistency in the list of major recipients which results from replacing total aid by bilateral or multilateral aid was immaterial.

2.2 Theories of Foreign Aid and Economic Development

Economic development is dependent on many factors and they include the quality of labour force, resources (natural and financial), capital, technology and the institutional setting of economic activities. In the 1950s and 1960s, early economic growth theories maintained that the basic problem of developing countries was attributed to capital formation in achieving economic growth and so these theories were of the opinion that development assistance was needed for the developing countries to fill the finance and technology gap. These gaps were popularly known as the trade and savings gap. According to the traditional position given by Chenery and Strout, all capital inflows constitute net additions to a less developing country's productive resources thus

increasing its economic growth. This argument is based on the two gap model whereby foreign capital inflows aided growth by removing foreign exchange and domestic exchange gap (Conchesta Kabete, 2008). This argument was however challenged by the Radical Economists who gave their argument that foreign capital inflow had a depressing effect on the propensity of the developing countries to save. These led to a reduction in the domestic savings rate and lower rate of capital formation and thus lower growth rates. These economists argued that foreign aid was a substitute and not a complement to domestic savings. We shall therefore be examining some of the theories explained in various literature reviews.

2.2.1   Harrod-Domar Model

The Harrod-Domar model was propounded by Sir Roy .F. Harrod in 1936 and Evsey Domar in 1946 and explains that total output is dependent on the rate of investment and the productivity of that investment. The model is used to explain economy's growth rate based on savings and capital productivity. The Harrod Domar model implies that poor countries should borrow finance investment in capital for economic growth. In an open economy, savings (both foreign and domestic) is a major source of investment. According to Easterly W. (2003), the model is expressed as:

$g = (I/Y) /\mu$ ……….. (1)

$I/Y = A/Y + S/Y$ …………. (2)

where I is required investments, Y is output; g is GDP growth target,

A is aid; S is domestic saving and μ the incremental capital-output ratio (ICOR).

The ICOR shows the ratio of investment to growth rate. It shows how much additional capital is needed for additional output. The incremental capital-output ratio (ICOR) ranges between 2 and 5. A low ICOR is a measure of high quality of investment while a high ICOR implied a low

investment quality. ICOR helped to estimate capital investments, the amount of aid flows needed to attain the target growth rate and was used in quantitative planning.

Savings in general is needed to increase growth as it provides means for investment though there lay doubt over the assumption of a stable linear relationship between investment and growth. For developing countries to reduce their dependence on foreign aid flows there is need to increase the propensity to save as this would provide funds needed for investments. There has been various criticisms of the Harrod Domar model one being on the assumption of a stable ICOR. According to Griffin (1970), aid inflows has increased ICOR in developing countries and this has lowered the efficiency of capital output because aid are usually invested in "prestigious projects that stand as monuments to the generosity of the politically motivated donors" . therefore, according to Snowdon (2010), if aid has a negative effect on ICOR, the impact of aid on growth reduces and might even become negative as significant amounts of aid are put into use.

2.2.2   The Two Gap Model

The second gap is the trade gap or foreign exchange gap and it supports the Harrod-Domar model of investment increasing growth. This occurs when there is a gap between import requirements for a given level of production and foreign exchange earnings. This gap states that foreign aid fills the gap of required import spending and actual export earnings. It is also assumed that both imports and exports are linearly dependent on income and there is a target rate of income. Even though the saving investment gap would be small, a larger trade gap would undermine productive investment due to limited imports of capital goods needed for investment. It is argued that either the trade gap or the foreign exchange gap is binding in developing countries and foreign aid helps to fill either of the gaps.

These gaps will only be filled if incentives to invest are approving. Foreign aid would not increase investment if there is little or no incentives for investment and if the productivity of such investments is questionable since the flows would go to consumption rather than investment (White, 1992). Conchesta (2008) stated that apart from the two gap model explained, there are factors limiting growth in aid dependent countries and they include low levels of technology, education, poor infrastructure, increased growth in population, interests paid on debts and political instability evident in some developing countries. This model has been criticized on the grounds that the problem of developing countries is not necessarily the insufficiency of domestic savings or foreign exchange gap but the inadequacy of policies as regarding trade and foreign exchange.

2.2.3 Three Gap Model

The three gap model, refers to the saving- investment gap, trade gap and the fiscal gap (Conchesta, 2008). The fiscal gap refers to a gap between government revenues and expenditures although the fiscal gap is a subset of the saving gap. Due to this fiscal gap, government efforts to stimulate private investment may be restrained when government resources for investment and imports are among other things, a result of debt service. There is enough evidence showing that government expenditures in Sub-Saharan African countries have been curtailed by foreign debt service despite different initiatives. Thus, the closing of this fiscal gap may be facilitated by external resources directed to the government budget.

In contrast, if aid is in form of a loan and not a grant, it may have adverse implications for the savings, foreign exchange and fiscal gaps in the long-run and for the macroeconomic performance in general. For example, debt payment creates a further demand on foreign currency and government revenue in general. *"Also debt service can result in the reduction of import*

capacity of the government thus reducing government investment, particularly in infrastructure, education and health facilities, a factor which is likely to affect negatively private investments"(Conchesta Kabete, 2008). Snowdon (2010) however criticized that foreign aid most times would not boost total savings and would in fact reduce domestic savings.

2.3 Empirical Issues

2.3.1 Foreign Aid and Economic Development

There have been different debates and opinions about the effect of foreign aid on economic performance. One side states that there is a positive relationship between foreign aid and economic growth or development while the other side is based on the opinion of an inverse relationship between foreign aid and economic development. Yet another side states that there is no relationship whatsoever between foreign aid and economic development in sub Saharan Africa. Thus, there has actually been no straightforward answer to the question of aid effectiveness.

  According to Whitaker (2006), there is a positive relationship between aid and economic growth especially in countries that have sound policies that facilitates trade and the economy at large. This is also supported by Burnside and Dollar, Farah Abuzeid and Durbarry et al (1998) foreign aid also leads to economic growth if good fiscal policies and strong institutions are in place. The kinds of policies here encompasses ensuring small, if any, budget deficits, controlling inflation, as well as trade openness and globalization though according to Durbarry, geographical factor is also a determinant of aid effectiveness. Mosley also suggested that there was a positive relationship between economic development and foreign aid; this is because aid helps to supply

international capital. Farah Abuzeid suggested the evidence that there is a growing consensus where aid is deemed effective under another determining factor which is institutions as the Big push theory can only work when there are reformed institutions and policies. Gupta (1975), Stoneman (1975), Gulati (1978), McGowan and Smith (1978) and Bradshaw (1985) also found positive relationships between foreign capital and economic growth. According to Burnside and Dollar (2000), World Bank (1998), aid is much more effective in environments characterized by high institutions quality as part of a capable developmental state. Todd Moss et al suggests that 'institutional development is an independent variable which affects the productivity of aid and is a recognized factor used to select and allocate to aid recipients. Whitaker (2006) also showed that the fact that massive amounts of foreign aid has been forwarded by developed nations and international institutions yet there has been perceived lack of result from this raises the question as to the actual effectiveness of foreign aid to less developed country. The result of his study was that foreign aid had a positive effect but factors like conflict and geography lessens the impact and can even make it negative. It was suggested by the World Bank that increasing foreign aid flows by $10 billion would lift about 25 million people out of poverty per year, provided that such countries have sound economic management. The figure drops to 7 million people for countries when it is vice versa.

The other side disagrees and is of the opinion that foreign aid has a negative effect on economic growth because it encourages corruption, encourages rent seeking behaviors and erodes bureaucratic institutions. Ali and Isse (2005) also showed that aid is bound by decreasing marginal returns thus explaining another way in which development assistance can be unfavourable to economic growth. Boone (1995) discovered that in the 1970s and 1980s, aid intensive African countries experienced no economic growth though foreign aid as measured by

share of GDP was actually increasing. Foreign aid in increased volume erodes bureaucratic and institutional quality as well as increases in the level of corruption and encourages rent seeking behavior (Knack, 2001). Bauer (1971) and Friedman (1958) also on foreign aid efficiency stated that politicians do not allocate aid properly as measured against the set goals and targets. Recipient countries would then misuse capital inflows since lack of domestic savings show lack of opportunities. Bauer (1976) also claimed that there is a negative casual relationship between aid and growth in low developing countries. This is because aid hinders growth by substituting for savings and investment rather than acting as their supplements. According to Djankov, et al (2005), foreign aid provides a windfall of resources to recipient countries and may result into rent-seeking behavior. It was also discovered that foreign aid had a negative effect on democracy. The effect of oil rents on political institutions was also measured and aid was seen as a bigger curse than oil.

There has been a renewed interest in explaining the cross country economic growth to explain the exact effect of foreign aid on the economy. Hall and Jones argue that differences between countries in capital accumulation, productivity, and output per worker can ultimately be attributed to differences in "social infrastructure," which they define as "the institutions and government policies that determine the economic environment within which individuals accumulate skills, and firms accumulate capital and produce output.

There is also a need for specific country case study because many of the literature on foreign aid and development in recipient countries only use international cross section statistical investigations rather than individual country case study (Riddell, 1987; Mosley et al, 1987). The results of the cross section studies depend on the countries and the periods of study chosen and such studies face problems of interpretation and measurement as the structural features of

individual countries are ignored. Boone (1995) concluded that aid does not significantly increase investment and growth but it increases the size of government. Fiscal analyst and donors are of the opinion that aid process is weakened by the ability of the recipient governments to alter their spending patterns to undermine the sectoral distribution of expenditure for designated projects (Conchesta, 2008).

A few studies (Heller, 1975; Khilji and Zampelli, 1991; Pack and Pack, 1993) have supported the theoretical proposition that developing countries have been rendering foreign aid fungible by transferring resources from the donor-aid sectors to non-donor aided sectors. According to the World Bank's 1998 report, assessing aid, countries with good monetary, fiscal and trade policies (i.e. good policy environment) registered high positive effect of aid. Such good policy environment depends on the donor or recipient count. However, of great importance is whether recipient countries spend donor funds on intended purposes. Studies using time series data in individual countries (Levy, 1987; McGuire, 1978, 1987; Gang and Khan, 1990; Pack and Pack, 1990) found no significant diversion and all agree that countries spend foreign aid funds on the designated purposes.

At sectoral level, Feyzioglu et al, (1998) found that aid is fungible on earmarked concessional loans for agriculture, education and energy, but not for transport and communication sectors. Pack and Pack (1990, 1993) concur with Feyzioglu, *et al* (in the case of Indonesia and Sri Lanka) that strong fly paper effect does occur on concessional loans (but the results differ with data on the Dominican Republic). The evidence that aid money increases government expenditure means that the recipient governments do use the increased resources as they choose to increase spending, cut taxes or reduce fiscal deficits.

Further on the effect of foreign aid on government expenditure, Devarajan, *et al* (1998) found that most aid (about 90%) boosted government expenditure with no significant evidence of tax relief. About half the aid was used to finance external debt service payments; one quarter to finance investments and the other quarter to offset current account deficits. On the other hand, Swaroop et al (2000), focusing on the effects of foreign aid on expenditure decisions of central government of India, found that foreign aid merely substitute for already earmarked government spending; the central government spends funds obtained through aid on non-development activities. This means that government choices are unaffected by external sources of finance. Finally, empirical literature using both panel and time series data supports the notion that aid increases government expenditure. For a recent comprehensive survey of the theoretical and empirical literature on foreign aid and growth, Hudson (2004) and McGillivray, *et al.* (2006) can be checked on.

A study conducted by McGillivray (2005) demonstrates how aid to African countries not only increases growth but also reduces poverty. Furthermore, the author points out the important fact that continuously growing poverty, mainly in sub-Saharan African countries, compromises the MDGs (Millennium Development Goals) main target of dropping the percentage of people living in extreme poverty to half the 1990 level by 2015. His research econometrically analyzes empirical, time series data for 1968-1999. The paper concludes that the policy regimes of each country, such as inflation and trade openness, influence the amounts of aid received.

Ouattara (2006) analyzed the effect of aid flows on key fiscal aggregates in Senegal. The paper utilized data over the time period 1970 – 2000 and focused on the relationship between aid and debt. Three conclusions were made out of the study. First, that a large portion of aid flows, approximately 41%, goes into financing Senegal's debt and 20% of the government's resources

are goes to debt servicing. Second, the impact of aid flows on domestic expenditures is statistically insignificant, and lastly, that debt servicing has a significant negative effect on domestic expenditure. Thus, his paper concluded that debt reduction could become a more successful policy tool than obtaining additional loans. Addison, Mavrotas and McGillivray (2005) examined trends in official aid to Africa over the period 1960 to 2002. The authors highlighted that the decrease in aid over the last decade which will have an impact on Africans living in poverty and the African economy as a whole. As a result of the shortfall in aid, the MDGs will be much harder if not impossible to be achieved. Thus, the paper concluded that aid do promote growth and reduce poverty. In addition, it also positively impacts public sector aggregates as it contributes to increase public spending and lowers domestic borrowing. However, the MGDs cannot be achieved with development aid alone as innovative sources of development finance need to be considered.

Karras (2006) looked into the correlation between foreign aid and growth in per capita GDP using data from 1960 to 1997 for a sample of 71 aid-receiving developing countries and the paper concluded that the effect of foreign aid on economic growth is positive, permanent, and statistically significant. Therefore, without considering the effect of policies, an increase in foreign aid by $20 per person leads to an increase in the growth rate of real GDP per capita by 0.16 percent.

Gomanee, Girma, and Morrissay (2005) addressed directly the mechanisms through which aid influenced growth. A sample of 25 Sub-Saharan African countries over the period 1970 to 1997 was looked into and the authors concluded that foreign aid had a significant positive effect on economic growth. Furthermore, they identified investment as the most significant transmission instrument. The paper also concluded that Africa's poor growth profile should be attributed to

factors other than aid ineffectiveness. Rather than using a large pool of data for numerous developing countries, Quartey's (2005) paper focused on innovative ways of making financial aid effective in Ghana and noted that the government and its partners need to plan better and coordinate their efforts to make MDBS (multi-donor budgetary support) successful. Quartey (2005) also suggested that government work towards reducing its debt burden so that aid inflows would not just be mainly used to service debt.

Economic research on foreign aid effectiveness and economic growth has frequently become a political topic. Burnside and Dollar (2000) searched the links between aid, policy, and growth and found that foreign aid has a positive impact on growth in developing countries with good fiscal, monetary and trade policies but has little effect in the presence of poor policies. This result has enormous policy implications and as such it provides a role and strategy for foreign aid. Easterly, Levine and Roodman (2004) reassesses whether foreign aid influences growth in the presence of good policies using more data and concluded that adding new data raises reservation on the effectiveness of aid. According to Easterly (2003), achieving a beneficial aggregate impact of foreign aid remains a mystery. In his research, Ram (2004) looks at the issue of poverty and economic growth from the view of recipient country's policies being the important element in the effectiveness of foreign aid. Nevertheless, in his paper the author disagrees with the accepted view that redirecting aid toward countries with better policies leads to higher economic growth and poverty reduction. Based on his research the author concluded that evidence is lacking to support the leading belief that directing foreign assistance to countries with good 'policy' will increase the impact on growth or poverty reduction in developing countries. According to Farah Abuzeid, Sound policy and good economic management is more important than foreign aid for developing countries. Bauer claimed that the problem is that aid

goes to governments whose policies retard growth and create poverty (1993) and these countries have incentives to make sure their institutions remain of poor quality because this will lead to more economic crises and an increase in aid flows (Azam and Laffont 2003).

The improvement of institutions is very important to decreasing inequality because better, more democratic institutions helps government to meet the needs of the poor (Reuveny and Lee 2003). Better institutions and governance also decreases inequality by redistributing income through effective taxation and by decreasing the influence of the "high-income political elites" through crackdowns on corruption. As the record shows, without good institutions, aid is likely to have a detrimental impact on the quality of governance in a recipient developing country. In the absence of these strong institutions, assistance efforts should be dedicated to improving the quality of governance before they can be effectively devoted to any economic development effort.

Rodrik (1998) argued that in the 1980s and 1990s countries with weak institutions are unable to deal with major economic shocks and this reflected in the slow performance of less developed countries. Therefore, according to Osabuohien and Ike (2011), economies with weak institutions move at a slow economic transformation rate because they would have difficulties in dealing with political and economic shock experiences.

According to Kaufmann et al (2005), there are six indicators of institutions and they include: political stability, voice and accountability, regulatory quality, control of corruption, government effectiveness and rule of law.

The political stability index shows the likelihood of the government being overthrown by unconstitutional means. This index used as a proxy for democracy. Studies including that of Williamson (1995), Aron (2000), Acemoglu et al (2001) have shown that the democratic a country is, the higher the income levels of such country

The voice and accountability index shows the extent to which political and civil rights are respected and practiced including the freedom of citizens to choose their government and the degree of freedom of press (Sanjeev)

The regulatory quality index shows the extent to which the government has control over the output market, banking system, international trade and business development. This index shows an establishment and favourable performance of a market based economic system thus encouraging an efficient allocation of resources.

The control of corruption index looks into the absence of corruption which is defined to mean the exercise public power for private gain. Control of corruption identifies the reduction of rent seeking behavior which would enhance efficiency and productivity (Sanjeev).

 The government effectiveness index looks at the quality of policies that are implemented and the quality of basic services such as education and health. In other words, this index measures the quality of both public and civil service and the soundness of the government's policies (Sanjeev).

The rule of law index shows the quality of property rights protection and the incidence of crime, the effectiveness of the law enforcing agents (judiciary) and the extent to which contracts are enforced (Sanjeev).

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction:

This chapter focuses on the procedures for the collection and analysis of data. After examining substantially the related literature review on foreign aid and economic development in Sub Saharan Africa, the next is the method of data collection and analysis called the Research Methodology. Research methodology is to provide a detailed account of the methods used in the collection of data, why these methods were chosen, the data obtained and how they are analyzed

3.2 Theoretical Framework

There has been evolutions and emergence of different growth theories over the years as several models and theories of growth have emerged. The theoretical framework that would be used to explain distinctly the relationship between foreign aid and economic development in sub Saharan Africa would be the new endogenous growth theory which came from Lucas Romer's modification of the old neo classical growth theory (Mallick and Moore, 2006). The main contributors to the new endogenous growth theory are Arrow (1962), Romer (1986) and Lucas (1988). The endogenous growth theory recognises the vital importance of the endogeniaty of capital (that is, human capital and research and development activities) in the growth process. The neoclassical model emphasised that technical progress or total factor productivity growth are

exogenously determined or given but the endogenous theory implies that growth is as a result of 'the learning by doing' effect which occurs between both physical and human capital (Mallick and Moore, 2006). The model also assumed constant or increasing returns to scale with non diminishing marginal productivity of capital instead of the assumption of constant returns of capital with diminishing marginal productivity of capital in the neoclassical growth theory (Mallick and Moore, 2006).

The assumption of increasing returns to capital of the new growth theory shows that foreign aid would most likely increase growth and development well into the future or long run. Another striking contribution of the endogenous growth theory is the recognition of the importance of human capital in the growth or in this case, development process as according to Mallick and Moore (2006), it is seen as a vital source of long term growth which is either in form of direct input to research (Romer, 1990) or representing positive externalities (Lucas, 1988). The human capital variables included in the model help to capture quality differences in labour force as investment in non physical capital helps to increase the labour force productivity. According to Barro and Lee (1993), these are mainly related to education and are measured by an index which is either mean years of schooling or school enrolment (Mallick and Moore, 2006) The effectiveness of foreign aid on economic development has been based on this theory since foreign aid could be a very important factor in the contribution of human capital (Kargbo, 2012). For instance, Lucas assumed that investing in education leads to production of human capital which is a very crucial determinant of the development process. According to Jhingan (2004), research and development or investment has become vital in the new growth theory. This theory as such suggests that developing countries also engage in trade with developed countries in order

to gain new knowledge in research and development and new technologies. Hence there is a need to encourage trade openness.

The new growth theory also recognises the usefulness of policies to economic growth and development as they enhance public and private investment in human capital and this justifies the inclusion of policy variables in the aid growth regressions. A very consistent concept in this growth model is the importance of capital to determine economic growth and development. There could be, however, other determinants of growth but the inclusion of capital (both physical and human capital) is a very important determinant of economic growth and development in developing countries. It is therefore very imperative as according to Kargbo (2012) to empirically prove if it is all types of capital that determines the economic performance of developing countries. Therefore, both physical capital (proxied by Gross Fixed Capital Formation) and human capital (as proxied by school enrolment rate) are included in the model to be regressed. As a result, foreign aid as a key source of capital is also included to determine economic development in sub Saharan Africa.

In conclusion, the new endogenous growth theory holds that economic growth is a result of the accumulation of physical capital (and human capital) and an expansion of the labour force. The endogenous growth theory is based on the idea that output in an economy is produced by a combination of labour (L) and capital (K), under increasing returns, so that the theory distinguishes between physical and human capital. This can be expressed mathematically:

$$Y = f(L, K, A) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

The aggregate production function above is assumed to be characterized by increasing returns to scale. Thus, in the special case of Cobb-Douglas production function at any time t,

$$Y(t) = K(t)[A(t)L(t)]^{1-\alpha}...(2)$$

where

Y = Quantity of output or Gross domestic product

A = productivity of labour which grows over time at an exogenous rate.

L = Labour

K = Stock of capital (which includes human capital as well as physical capital).

According to Gwartney et al. (2004), another approach to fully understand the growth theory is the institutions approach. This approach includes institutions as being an important determinant and having an important role to play. Institutions are seen to affect the availability and productivity of resources and so actions supporting property rights and freedom of exchange for credible policy commitments should be encouraged. Also, the government should strengthen the role of political and legal environment among other functions. This is in line with the opinion of North (1990) who emphasised that the 'third world countries' are poor because their institutional constraints defines a set of pay offs of political activities that does not encourage production activities (Wako, 2011). Hansen and Trap (2000) explained that over the years, considering the institutions approach to growth; progressions have been made on the topic of aid effectiveness. The progressions have included making use of panel data, inclusion of institutions in the growth regression, recognition of the endogeneity of aid and other variables and explicit recognition of linearity in aid-growth relationship (Wako, 2011)

3.3 Specification of Model

This section discusses the model specifications to examine the relationships between foreign aid and per capita GDP growth.

The study model is therefore specified as:

$$RGDPERK = f(GFCF, LAB, AID, INSQUAL, HUKP)\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

$$RGDPERK = b_0 GFCF^{\beta 1} LAB^{\beta 2} AID^{\beta 3} INSQUAL^{\beta 4} HUKP^{\beta 5}\dots\dots\dots\dots\dots\dots (2)$$

The dependent variable in this instance is the Per Capita Gross Domestic Product while the explanatory variables are official development assistance, institutional quality, gross fixed capital formation, labour force input and human capital. In order to effectively capture economic development using Real GDP per capita, we take the logarithm of GDP (which has been used also by Hezer and Morrissey, 2011; Adhikary, 2011) because the log difference of Real GDP per capita implies economic development. Also, all the other regressors are expressed in logarithms too.

$$(RGDPK_{it}) = b_0 + b_1(GFCF_{it}) + b_2(LAB_{it}) + b_3(AID_{it}) + b_4(HUKP_{it}) + e^{b_5 insqual_{it}} +$$

$$e_{it}\dots\dots(3)$$

Taking the natural logarithm of equation 2, the function is written as:

$$log(RGDPK_{it})$$

$$= b_0 + b_1 log(GFCF_{it}) + b_2 log(LAB_{it}) + b_3 log(AID_{it}) + b4log$$

$$+ b_4 log(HUKP_{it}) + b_5(INSQUAL_{it}) + e_{it}$$

Where: $b_0 = intercept$

$b_1, b_2, b3, b4, b_5$ are the various slope coefficients

$e_{it} = stochastic\ disturbance\ factor.$

$RGDPERK_{it} = real\ GDP\ per\ capita\ of\ country_i\ in\ year_t$

$AID_{it} = official\ development\ assistance$ of $country_i$ in $year_t$

$INSQUAL_{it} = Institutional\ Quality\ of\ country_i\ in\ year_t$

$GFCF_{it} = Gross\ fixed\ capital\ formation\ of\ country_i\ in\ year_t$

$LAB = Labor\ force\ of\ country_i\ in\ year_t$

$HUKP = Human\ capital\ of\ country_i\ in\ year_t$

The apriori expectations are:

$$b_0 > 0, b_1 > 0, b_2 > 0, b_3 > 0, b_4 > 0, b_5 > 0$$

$b_1 > 0$: there is a positive relationship between gross fixed capital formation and GDP per capita. The higher the GFCF, the higher the economic development of a country and vice versa.

$b_2 > 0$: there is a positive relationship between labor force input and GDP per capita.

$b_3 > 0$ there is a positive relationship between foreign aid and GDP. The higher the ODA received by a country, the higher the GDP.

$b_4 > 0$: there is a direct, positive relationship between institutions and GDP such that the stronger the institution, the higher the rate of GDP. When there is a strong institutional framework, there is increased investment and economic development and vice versa.

$b_5 > 0$: there is a direct relationship between human capital development (which is proxied by tertiary enrolment rate) and economic development. The higher the rate of human capital development, the higher the economic development of a country.

3.4 Description of Variables

1) Foreign Aid: this is a term that was used by the Development Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD) to measure aid. It is widely used as an indicator of international aid flows. ODA needs to contain the three elements:

   a) it must be undertaken by the official sector

   b) with the promotion of economic development

   c) concessional financial terms(if a loan, having a grant of at least 25 percent).

This definition has been used to exclude development aid from the other two categories of aid defined by the DAC members

2) Institutions: Institutions mainly looks at the quality of a country's institution in terms of its political standing, rule of law, control of corruption, etc. This shows the average of political rights and civil liberties measure and each indicator of institutions is measured on a scale of 1 to 7 with 1 implying the highest degree of freedom and seven being the lowest.

3) Gross Fixed Capital Formation: Gross fixed capital formation is a flow value and is expressed by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain additions to the value of non- produced assets (such as subsoil assets or major improvements in the quantity, quality or productivity of land) realized by the productive activity of institutional units.

4) Labour force: The labour force consists of people who are actively employed or are seeking employment.

5) Human Capital: human capital measures the economic value of an employee's skill set. It shows or examines the stock of competencies, knowledge, social and personality

attributes including creativity, embodied in the ability to perform labor so as to produce economic value.

3.5 Sources Of Data And Measurement

Data is obtained from secondary sources and it covers the period of 1996-2010. The economic development rate is measured in this study as the growth of real GDP per capita in constant (2000) U.S. dollars. The data on the dependent variable and independent variables are from the World Bank, World Development Indicators. The data on institutional quality are from the World Governance indicators database.

3.6 Technique of Estimation

Here the technique of estimation used is discussed and the justification for this technique is established. The advantages of using panel data over the usage of time-series and cross-sectional data have been reviewed in different literature. According to Verbeek (2000), the major advantages of using panel data are that, it helps in identifying parameters in the presence of measurement error, the robustness of panel-data-based models to omitted variables, and the efficiency of parameter estimates because of the larger sample size with explanatory variables changing over two dimensions (Wako, 2011). Based on the evaluated advantages of panel data over others, the panel data would as such be used in examining aid effectiveness. The adoption of OLS in panel data analysis has been criticized in various studies particularly where the lagged dependent variable enters the set of explanatory variables as is seen in the case of foreign aid (Wako, 2011). According to Bond et al. (2001), Bond (2002) and Roodman (2006b), the correlation between the lagged value of the dependent variable or any endogenous explanatory variable and the individual-specific, time-invariant effect(s) makes the OLS estimates biased and

inconsistent (Wako, 2011). Bond (2002) also noted that the inconsistency of pooled OLS still exists even if the serial correlation of the error term is assumed away. According to Bond, (2002), Buhai (2003), in order to allow for country-specific heterogeneity and considering the potential gain in efficiency, fixed effects, the between effects and the random effects models are used in many researches. However, though the transforming techniques of these static panel data techniques could provide lags of the variables as their instruments and imply the consistency of such estimates, such a consistency is not applicable to short panels with many individuals (large N) observed over short periods (small T) (Wako, 2011). While the use of the Within Groups estimation eliminates individual heterogeneity, it does not account for the issue of dynamism/persistency of the dependent variable (growth rate of GDP per capita in this case) (Bond, 2002; Buhai, 2003). Thus, regressing the models specified earlier requires a better method of estimation in situations where regressors could be endogenous, where individual-specific patterns of heteroskedasticity and serial correlation of individual disturbances (part of the error term that varies both over time and across individuals) are likely, where the time dimension of the panel data is small, and where there is no much hope for good exogenous instruments. There has been much support for the use of GMM in cross-country literature. Caselli, Esquivel and Lefort supported the use of the GMM panel data estimator in analyzing conditional convergence in the Augmented Solow Growth Model. As Roodman (2006b) explained the differenced-GMM and the system-GMM estimators are developed to suit panel data analysis under such conditions. System-GMM is argued, for instance, in Bond et al. (2001), Bond (2002) and Roodman (2006b), to fit growth regressions better than the differenced-GMM, particularly with near unit-root series (Wako, 2011). The GMM estimation is often possible

where a likelihood analysis is extremely difficult. Estimation of the models were handled using the statistical software STATA version 10.

3.7 Method of Analysis

This research work will be based on the use of an Econometric method specifically the GMM system estimator because this form of regression, according to Levine et al (2000) has a more reliable small sample properties when it comes to bias and precision when the dependent variable is persistent. The sub Saharan African countries to be examined would be a total of at least 40 countries based on the amount of data available for each.

CHAPTER FOUR

EMPIRICAL ANALYSIS AND RESULTS

4.1 Introduction

In this chapter, the empirical analyses and their results which were carried out on the models as well as their economic interpretation of findings obtained from the study shall be looked into. In order to effectively examine if foreign aid and the other variables affect economic development in sub Saharan Africa as well as the other objectives mentioned in the earlier chapter, this chapter shall look into both the descriptive and econometric analyses. The descriptive analysis majorly focuses on the unique statistical characteristics of the variables. The econometric analysis includes the pair wise correlation test, ordinary pool regression, fixed effect regression, random effect regression, the Hausman test and the system GMM test.

4.2 Data Analysis

4.2.1 Descriptive Analysis of the Data.

This analysis looks at the trend of variables of different countries over the time period. This section also shows the individual characteristics of the variables used in the model.

Table 1: Descriptive statistics of variables

Variables	Obs	Mean	Std. Dev	Min	Max
LRGDPK	689	6.201314	1.076913	4.062166	9.088173
LGFCF	623	20.14106	1.513775	15.78959	24.5029
LLAB	675	14.69456	1.508442	10.60906	17.73351
LAID	687	19.51093	1.259951	16.2751	23.24096
ROL	537	-0.6938175	0.6407454	-2.23	1.06
COC	563	-0.5925222	0.5890245	-2.06	1.25
LHUKP	357	0.982328	0.9031915	-1.518684	3.214868

Source: Author's compilation from STATA 10.

The mean shows the average of the various variables. It is the average value of the series obtained by adding up the series and dividing by the number of observations. The mean for Real GDP Per Capita is given as 6.201314; the mean for Gross fixed capital formation is given as 20.14106. The mean for Labour is 14.69456, that for foreign aid is 19.51093. The mean for rule of law is given as -0.6938175 while that of control of corruption is given as -0.5925222. Lastly, the mean for human capital is 0.982328.

The standard deviation explains how spread out a variable is around its mean.it is a measure of dispersion or spread in the series. The standard deviation value of Real GDP Per Capita is 1.076913. The standard deviation value of gross fixed capital formation is 1.513775. The standard deviation value for Labour is given as 1.508442. The standard deviation value for

foreign aid is 1.259951. The value of the standard deviation for Rule of Law, Control of Corruption and Human capital are 0.6407454, 0.5890245 and 0.9031915 respectively. For the variables (LRGDPK, LGFCF, LLAB, ROL, COC, HUKP) the standard deviation is low compared to their mean. This shows a small coefficient of variation.

Maximum and minimum are the maximum and minimum values of the series in the current sample. The minimum of RGDPK is 4.062166 while the maximum is 9.088173, the minimum of GFCF is 15.78959 while the maximum is 24.5029, the minimum of LAB is 10.60906 while the maximum is 17.73351, the minimum of AID is 16.2751 while the maximum is 23.24096, the minimum of ROL, COC and HUKP are -2.23, -2.06 and -1.518684 respectively while their maximum are 1.06, 1.25 and 3.214868 respectively.

4.2.2 Econometrics Analyses

Here, the ordinary pooled regression, fixed effect regression, Random effect regression. Hausman test and the main GMM test shall be conducted and their results explained respectively. Real GDP Per Capita which is the dependent variable was logged, and all other independent variables excluding Rule of Law and Control of Corruption. This is because they carry negative values and negative values are not to be logged.

4.2.2.1The pair wise correlation test

Table 2: Pair wise correlation test

	Gfcf	Lab	Aid	Rol	Coc	hukp
Gfcf	1.0000					
Lab	0.3611	1.0000				
Aid	0.1744	0.6055	1.0000			
Rol	0.1648	-0.2271	-0.0885	1.0000		
Coc	0.1837	-0.2665	-0.1140	0.8609	1.0000	
Hukp	0.1905	-0.1716	-0.1425	0.4351	0.3781	1.0000

Source: Author's compilation from STATA 1O.

The pair wise correlation test helps to check for correlation between the independent variables. If there is correlation between the independent variables, there would be the presence of multicollinearity and this would affect the efficiency and non biasness of the regression. The existence of no perfect correlation indicates that the independent variables which include GFCF, LAB, AID, ROL, COC and HUKP are not correlated with each other because the values are less than one, thus, there is no problem of multicollinearity among them.

4.2.2.2 Ordinary Pooled Regression

Table 3: Ordinary pooled regression test

LRGDPK	Coeff.	Std. err.	T	P>|t|
LGfcf	.4903518	.0313799	15.63	0.000
LLab	-.3869536	.0391313	-9.89	0.000
Laid	-.2972953	.0403554	-7.37	0.000
Rol	.1088395	.0748134	1.45	0.147
Coc	.0632082	.0788827	0.80	0.424
LHukp	.1698063	.0367778	4.62	0.000
_cons	7.665361	.5322897	14.40	0.000

Source: Author's compilation from STATA 1O.

Pooled regression is usually carried out on the panel data. From the available results in the pooled regression, a proportionate change in GFCF would lead to a less than proportionate change in RGDPK. This same goes for Labour (LAB), Foreign Aid (AID), Rule of law (ROL), control of corruption (COC) and Human capital (HUKP).

 Examining the t statistics, the interpretation of the t-test is such that when the absolute values of the independent variable are approximately 2 or above, otherwise the variable becomes insignificant. Looking at the table above, GFCF has a significant relationship with RGDPK. The same goes for all the independent variables asides ROL and COC whose absolute values were

less than 2. Therefore, ROL and COC have an insignificant relationship with the dependent variable, RGDPK.

4.2.2.3 Fixed Effect Regression

Table 4: fixed effect regression table.

	Coeff.	Std. err.	T	P>|t|
Lgfcf	.0461522	.0206027	2.24	0.026
Llab	.2119504	.1132885	1.87	0.063
Laid	-.0467392	.0177235	-2.64	0.009
Rol	.1207702	.0458092	2.64	0.009
Coc	.0281721	.0334768	0.84	0.401
Lhukp	.1581069	.0242004	6.53	0.000
_cons	2.81936	1.423865	1.98	0.049
sigma_u	.97836147			
sigma_e	.08500866			
Rho	.99250691			

Source: Author's compilation from STATA 1O.

The fixed effect model controls for time invariant differences that exists between countries so the estimated coefficients of the fixed effect model cannot be biased because of omitted time invariant characteristics like culture, gender, religion, race and so on.

Looking at the figures in the above tables, the t statistics shows that there is a significant relationship between the dependent variable and independent variables excluding Control of

corruption. The test of the goodness of fit (Rho) also shows how well the model fits the data. The F-statistics also shows the significance of the model.

4.2.2.4 Random effect regression table

Table 5: Random effect regression test

	Coeff.	Std. err.	T	P>|t|
Lgfcf	0.1169852	.0196725	5.95	0.000
Llab	-.2950377	0.0534192	-5.52	0.000
Laid	-.0530724	.0197224	-2.69	0.007
Rol	0.1410111	.049217	2.87	0.004
Coc	-.0126988	.0361178	-0.35	0.725
Lhukp	0.2278372	.0205366	11.09	0.000
_cons	8.957337	0.6743939	13.28	0.000
sigma_u	.39569066			
sigma_e	.08500866			
Rho	.95588169			

Source: Author's compilation from STATA 1O.

The random effect regression unlike the fixed effect regression assumes that all variations across individuals are random and uncorrelated with the independent variables which are included in the model. One advantage of this regression is that it includes time invariant variables like gender. Random effect assumes that the entity's error term is not correlated with the predictors which allow for time-invariant variables to play as explanatory variables. This regression helps to generalize inferences beyond the sample used in the model.

There is a significant and inelastic relationship between the dependent variable, Real GDP Per Capita and Gross fixed capital formation. This means that a proportionate change in Gross fixed capital formation would to a less than proportionate change in Real GDP Per Capita. The same relationship goes for Foreign aid, Human capital. There is an inelastic relationship between labour and Real GDP Per Capita though it is an insignificant one. For control of corruption, there is a significant, inverse relationship with Real GDP Per Capita. Therefore, ironically, the more corruption there is, the higher the economic development. This is in accordance with the view of Welfe and Welfe (2009). For rule of law, there is a significant, positive relationship between Rule of Law and Real GDP Per Capita. Thus, the more prevalent rule of law is, the higher the economic development recorded in sub Saharan Africa.

4.2.2.5The Hausman Test

Table 6: Hausman Test

	Fixed(b)	Randon(B)	Difference(b-B)	Sqrt [diag(v_b-v_B] S.E
Lgfcf	0.0461522	0.1169852	-0.0708331	0.006121
Llab	0.2119504	-0.2950377	0.5069881	0.0999034
Laid	-0.0467392	-0.0530724	0.0063331	.
Rol	0.1207702	0.1410111	-0.020241	.
Coc	0.0281721	-0.126988	0.0408709	.
Lhukp	0.1581069	0.2278372	-0.0697302	0.0128028

Source: Author's compilation from STATA 1O.

chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B) =   8.45

Prob>chi2 =   0.2070

The Hausman test helps us to choose between the fixed effect regression and the random effect regression. The hausman test tests the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. If they are, it is safe to use random effects. If the P-values are statistically

significant, then the fixed effects regression is used. It basically tests whether the unique errors are correlated with the regressors, the null hypothesis is that they are not. Looking at the Hausman test table, the probability (chi-square) shows that it is not significant and as such the Random effect regression will be more appropriate in the study; but in order to overcome the challenge of endogeneity which is inherent in this study; the System Generalized Method of Moment (GMM) is considered most appropriate in order to obtain reliable estimates (Alege and Ogundipe, 2013).

In order to regress the models specified earlier, there has to be a better method of estimation in situations where regressors could be endogenous, where individual-specific patterns of heteroskedasticity and serial correlation of individual disturbances (part of the error term that varies both over time and across individuals) are likely, where the time dimension of the panel data is small, and where there is no much hope for good exogenous instruments. Based on Past Literature, foreign aid is seen to have a causality effect relationship with Economic development, which is our dependent variable since foreign aid in some instances could be endogenous. The GMM estimator has also been supported in the past by Bond et al. (2001), Bond (2002) and Roodman (2006b) because it helps to fit growth regression. Roodman also stated extensively that the GMM estimators are used to suit panel data analysis in situations where conditional convergences in the growth models could occur.

4.2.2.6 System dynamic panel-data estimation

Number of obs= 215   Number of groups=40

Group variable: id Number of groups=40   obs per group: min=1

Time variable: years   avg=5.375

Number of instruments= 82   Max=11

Wald chi2(7)   = 1.81e+06   Prob > chi2   =   0.0000

Table 7: System dynamic panel data Test.

Lrgdpk	Coef.	Std. Err.	Z	P>|z|	[95% Conf. Interval]	
Lrgdpk						
L1	1.025194	0.009429	108.73	0.000	1.006713	1.043674
Lgfcf	0.0165695	0.0006299	26.30	0.000	0.0153348	0.0178041
Llab	0.0009856	0.0075836	0.13	0.897	-0.013878	0.0158492
Laid	-0.005013	0.0028154	-1.78	0.075	-0.0105311	0.000505
Rol	0.0728883	0.0024538	29.70	0.000	0.0680789	0.0776977
Coc	-0.0443613	0.0043732	-10.14	0.000	-0.0529326	-0.03579
Lhukp	-0.010289	0.0044708	-2.30	0.021	-0.0190516	-0.0015265
_cons	-0.3462577	0.1468183	-2.36	0.018	-0.6340164	-0.0584991

Source: Author's compilation from STATA 1O.

The table above shows the estimation of the model using the system based GMM estimator. The coefficient, t-statistics, probability of t-test would be employed to interpret the relationship between the dependent and independent variables appropriately.

Examining the coefficients of the System based GMM, for Gross fixed capital formation, a proportionate change in Gross fixed capital formation would lead to a less than proportionate change in Real GDP Per capita. There is also an inelastic relationship between the gross fixed capital formation and Real GDP Per Capita. For Labour, there exists an inelastic relationship between this variable and Real GDP Per Capita. Thus, a proportionate change in Real GDP Per Capita would lead to a less than proportionate change in Real GDP Per Capita. There is an inelastic relationship between foreign aid and Real GDP Per Capita. Therefore, a proportionate change in Aid would lead to a less than proportionate change in Real GDP Per Capita. There exists a positive and direct relationship between Rule of Law and Real GDP Per Capita. Therefore, a percentage change in Rule of Law by 1% would lead to a less than proportionate increase in Real GDP Per Capita by 7.3%. Also, there is an inverse relationship between Control

of corruption (COC) and Real GDP Per Capita (RGDPK). Thus, a percentage change in Control of corruption would lead to a less than proportionate decrease in Real GDP Per Capita by 4.4%. There is an inelastic relationship between Human Capital and Real GDP Per Capita and so, a proportionate change in Human Capital would lead to a less than proportionate change in Real GDP Per Capita.

Examining the T-Test Statistics, based on the Rule of thumb, the decision rule and interpretation of the t-test is such that when the absolute values of the independent variable is approximately 2 or above, the variable considered is seen as significant but when it is below 2, then it is considered insignificant in the model .There is a significant statistical relationship between Real GDP Per Capita and Gross Fixed Capital Formation. This implies that the independent variable can be used to explain changes in Real GDP Per Capita. Also, there is a significant relationship between the dependent variable, which is Real GDP Per Capita (RGDPK) and the other independent variables including Rule of Law, Control of corruption, Human Capital. However, there is an insignificant relationship between Labour (LAB) and Real GDP Per Capita. This implies that Labour which is the independent variable cannot be used to explain changes in the dependent variable.

4.4Findings and Economic Interpretation of Results

The results of the system based GMM estimator of each variable will be explained in light of economic theory. The implication of the result also on Sub Saharan Africa Region would be examined. The model sought to relate the proxy for economic development which is Real GDP Per Capita (RGDPK) to its explanatory variables Gross Fixed Capital Formation (GFCF),

Labour (LAB), Foreign Aid(AID), Rule of Law (ROL) and control of Corruption (COC), which are the proxies used for institutions and Human Capital (HUKP).

The Gross fixed capital formation has a significant inelastic relationship with the dependent variable Real GDP Per capita. This implies that a proportionate change in Gross Fixed Capital Formation in sub Saharan Africa would bring about a less than proportionate change in Economic Development. This implies, that though Gross fixed capital formation is needed for economic development in sub Saharan Africa; it has not been effectively utilized to produce optimal results. Labour as explained earlier on has an insignificant, inelastic relationship with Real GDP Per Capita. Therefore, this implies that in sub Saharan Africa, labour is not significant in explaining economic development. Human capital was also incorporated into the model in line with the New Growth theory and it is seen that human capital has a significant, inelastic relationship with Real GDP Per Capita. The economic implication for this is that although human capital contributed to economic development in sub Saharan Africa, a proportionate change in Human Capital has brought about a less than proportionate change in economic development. Human Capital has to be as such, maximized well to produce effective results on economic development.

For foreign aid which is the main independent variable in this context, there is a significant, inelastic relationship with the Real GDP Per Capita. The economic implication is that, foreign aid contributes to Economic development in sub Saharan Africa. However, a proportionate change in Foreign aid leads to a less than proportionate change in the economic development of the region. Thus foreign aid has not been effectively used and managed as it ought to. For developing countries, a proportionate change in foreign aid is supposed to yield a more than proportionate change in economic development as reviewed in different literature (Eroglu and

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Yavuz, Morrissey). One major reason that has been attributed for this is the presence of weak institutions in the region (Todd Moss, Farah Abuzeid). Rule of law and control of corruption which is the chosen measure of institution show a significant relationship with Real GDP Per Capita. This means that institution is useful in explaining aid effectiveness as well as economic development in sub Saharan Africa. However, for control of corruption, there is an inverse relationship with Real GDP Per capita. As such, ironically, the higher the control of corruption in sub Saharan Africa, the lower the economic development. Rule of law however has a positive, direct effect on economic development and the higher the prevalence of rule of law, the higher the economic development in the region.

4.5 Conclusion

Based on the empirical analyses and results obtained in this research study, foreign aid has been found to have a significant relationship with economic development in sub Saharan Africa and as such the null hypothesis is rejected. Also, the opinion that institutions do not have a significant effect in aid effectiveness and economic development is rejected. The technique of estimation used was the Generalized method of moments and this method was adopted to overcome the endogeneity issues perceived among the variables. Based on the results given in chapter 4, it is recommended that for foreign aid to be very effective in ensuring economic development in sub Saharan Africa, institutions are to be more strengthened as they have important role to play in aid effectiveness and economic development. This is in line with the different literatures including that of Farah Abuzeid, Burnside and Dollar (2000), Reuveny and Lee (2003) that the improvement of institutions is very important for aid effectiveness in developing countries.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.1 Summary

This research study set to find out if there is a significant relationship existing between foreign aid and economic development in sub Saharan Africa over the periods 1996 to 2010 by analyzing countries across time and space, that is, cross sectional data. It also sought to examine the role of institutions on aid effectiveness and economic development

In order to achieve these objectives, the new growth theory was the main theoretical framework including some other theories such as the Harrod-Domar model, the two gap models, and three gap model and so on. In the model, Real Gross Domestic Product Per Capita was used as a proxy for economic development. The explanatory variables used include Gross fixed capital formation, Labour, Foreign aid, institutions (as proxied by Rule of law and control of corruption) and Human capital (as proxied by tertiary enrolment rate).

After a review of relevant literature and the necessary empirical analyses (both descriptive and econometric), an inelastic relationship was observed between foreign aid and economic development in sub Saharan Africa and the reason for this can be attributed to poor institutions in Sub Saharan Africa which limits the effectiveness of aid as stated in chapter two. Also, though all the explanatory variables were significant asides labour, not all positively influence economic development. The explanatory variables that had an inelastic relationship economic development

includes foreign aid and human capital. A reason for the inverse relationship between control of corruption and economic development in developing countries such as the ones in sub Saharan Africa is explained by Welfe and Welfe (2009) in which it is discovered that corruption could actually lead to economic development. Corruption is seen to influence economic development though not always in an adverse way. In fact, corruption may serve to replace weak institutions functionality found in sub Saharan Africa and indeed increase production in such countries by avoiding inefficient and cumbersome government regulations. Corruption is also seen to be more beneficial to economic development when economic freedom is low (Heckellman and Powell, 2008). Also, according to Lui (1996), corruption is seen to reestablish price mechanism and to help allocate resources in distorted, heavily regulated markets. Other persons including Friedrich (1972), Nye(1967), Huntington(1968) concluded that corruption actually facilitates the wheels of business and commerce thus aiding economic growth and investment (Selcuk Akcay).

5.2 Policy Recommendations

In the words of Burnside and Dollar, Farah Abuzeid, it is generally believed that developing countries are able to enhance their growth and development prospects through foreign aid. For the purpose of this research work, the following recommendations are given:

1) The inelastic relationship between foreign aid and economic development in sub Saharan Africa has a lot of implications for sub Saharan Africa economic policy. It implies that aid has not produced optimal results as is expected. Aid as such has not been effective and this point to the fact that there are other factors which influences aid effectiveness. According to Farah Abuzeid, aid is effective in the presence of strong, reliable institutions. This evidence is further backed up by Todd Moss who stated that

institutional development is an independent variable thought to affect aid efficiency. Therefore, the government of countries in this region should ensure that policies are made to build and strengthen institutions so that aid can be more effective.

2) Institutions actually have a role to play in aid effectiveness and in economic development in sub Saharan Africa. This is in line with the opinion of Burnside and Dollar (2000), Hall and Jones. Attention should therefore be devoted to the subject matter of institutions in influencing aid effectiveness and economic performance in sub Saharan Africa.

3) There are different ways to improve aid effectiveness asides strengthening institutions according to the Paris Declaration and they include: maximization of donors' coordination and harmonization, improving aid transparency and mutual accountability of donors and recipients.

4) There was a significant but inelastic relationship between Human capital and economic development. According to Adeoye (2012), what are needed for Africa to develop is not necessarily assistance funds. There is a need for responsibility to invest in self sustained development projects. The first indicator of development according to Adeoye (2012) is Human capacity building. Thus, more attention should be given to Human Capital development as an indicator of economic development.

5) There was also a significant but inverse relationship between control of corruption and economic development. There have been several reasons accorded to this result as given by Welfe and Welfe (2009), Nye (1967), Friedrich (1972) and so on. Though, sometimes Corruption is good for economic development especially in developing countries, it should not exceed a particular point lest it becomes harmful.

5.3 Conclusion

This research work examined the effectiveness of foreign aid and the role of institutions in sub Saharan Africa region and this area can be enhanced if the recommendations discussed in the study are carried out.

5.4 Limitations to Study

The main limitation of this study was mostly data related. There was also paucity of data for some variables especially human capital for some countries also. Another limitation was error in estimation which is a characteristic of secondary data.

5.5 Suggestions for Further Study

An interesting variant to this study would an in-depth review of foreign aid effectiveness within longer time period. This would be able to give more scope and information about foreign aid effectiveness. Also, other measures of institutions asides rule of law and control of corruption can be looked into.

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APPENDIX

YEARS	COUNTRY	ID	RGDPK	AID	ROL	COC	GFCF	LAB	HUKP
1996	Angola	1	5.98E+0	6.29E+0	-	-	2.61E+0	4.67E+0	

Year	Country		C1	C2	C3	C4	C5	C6	C7
			2	8	1.63	1.16	9	6	
1997	Angola	1	6.28E+02	5.35E+08			1.95E+09	4.79E+06	
1998	Angola	1	6.53E+02	5.06E+08	-1.70	-1.32	2.29E+09	4.91E+06	6.28E-01
1999	Angola	1	6.56E+02	5.81E+08			1.77E+09	5.04E+06	5.95E-01
2000	Angola	1	6.56E+02	4.74E+08	-1.63	-1.52	1.37E+09	5.20E+06	
2001	Angola	1	6.54E+02	4.59E+08			1.20E+09	5.37E+06	
2002	Angola	1	7.24E+02	6.09E+08	-1.61	-1.14	1.44E+09	5.52E+06	8.62E-01
2003	Angola	1	7.22E+02	6.31E+08	-1.53	-1.30	1.77E+09	5.72E+06	3.19E+00
2004	Angola	1	7.76E+02	1.36E+09	-1.46	-1.28	1.80E+09	5.90E+06	2.39E+00
2005	Angola	1	8.88E+02	4.77E+08	-1.44	-1.33	2.52E+09	6.06E+06	2.96E+00
2006	Angola	1	1.04E+03	1.84E+08	-1.30	-1.23	6.42E+09	6.23E+06	2.90E+00
2007	Angola	1	1.24E+03	2.57E+08	-1.40	-1.32	8.16E+09	6.40E+06	
2008	Angola	1	1.37E+03	3.59E+08	-1.39	-1.28	1.36E+10	6.59E+06	
2009	Angola	1	1.36E+03	2.44E+08	-1.22	-1.44	1.15E+10	6.84E+06	
2010	Angola	1	1.37E+03	2.38E+08	-1.24	-1.34	1.04E+10	7.11E+06	3.71E+00
1996	Benin	2	3.15E+02	3.67E+08	-0.19	-0.93	1.62E+08	2.30E+06	2.15E+00
1997	Benin	2	3.25E+02	3.14E+08			1.76E+08	2.36E+06	2.61E+00
1998	Benin	2	3.31E+02	2.91E+08	-0.14	-0.60	3.46E+08	2.42E+06	
1999	Benin	2	3.37E+02	3.01E+08			3.73E+08	2.49E+06	3.41E+00
2000	Benin	2	3.46E+02	3.90E+08	-0.27	-0.49	4.27E+08	2.56E+06	3.89E+00
2001	Benin	2	3.52E+02	4.45E+08			4.54E+08	2.64E+06	4.73E+00
2002	Benin	2	3.57E+02	3.36E+08	-0.34	-0.79	4.47E+08	2.73E+06	5.60E+00
2003	Benin	2	3.59E+02	3.86E+08	-0.52	-0.57	4.95E+08	2.83E+06	6.20E+00
2004	Benin	2	3.58E+02	4.66E+08	-	-	4.95E+08	2.94E+06	6.27E+00

Year	Country	ID							
			2	8	0.59	0.49	8	6	0
2005	Benin	2	3.57E+02	4.02E+08	-0.59	-0.97	5.52E+08	3.05E+06	6.19E+00
2006	Benin	2	3.61E+02	4.50E+08	-0.57	-0.61		3.16E+06	6.03E+00
2007	Benin	2	3.66E+02	4.87E+08	-0.55	-0.47		3.27E+06	
2008	Benin	2	3.74E+02	6.21E+08	-0.57	-0.53		3.39E+06	
2009	Benin	2	3.77E+02	6.74E+08	-0.70	-0.70		3.50E+06	1.06E+01
2010	Benin	2	3.77E+02	6.89E+08	-0.73	-0.76		3.62E+06	
1996	Botswana	3	2.56E+03	9.50E+07	0.50	0.59	1.01E+09	7.15E+05	5.51E+00
1997	Botswana	3	2.76E+03	1.75E+08			1.13E+09	7.41E+05	
1998	Botswana	3	2.99E+03	1.49E+08	0.58	0.71	1.33E+09	7.67E+05	
1999	Botswana	3	3.08E+03	8.49E+07			1.43E+09	7.93E+05	5.25E+00
2000	Botswana	3	3.20E+03	4.63E+07	0.53	0.67	1.46E+09	8.17E+05	5.64E+00
2001	Botswana	3	3.27E+03	4.58E+07			1.52E+09	8.39E+05	6.07E+00
2002	Botswana	3	3.52E+03	5.05E+07	0.50	0.61	1.60E+09	8.61E+05	6.57E+00
2003	Botswana	3	3.69E+03	3.51E+07	0.67	1.25	1.64E+09	8.81E+05	7.56E+00
2004	Botswana	3	3.87E+03	5.90E+07	0.64	0.88	1.71E+09	9.02E+05	7.44E+00
2005	Botswana	3	3.88E+03	5.52E+07	0.60	1.14	1.63E+09	9.24E+05	7.29E+00
2006	Botswana	3	4.03E+03	7.62E+07	0.57	0.89	1.58E+09	9.47E+05	7.44E+00
2007	Botswana	3	4.16E+03	1.10E+08	0.61	0.94	1.87E+09	9.69E+05	
2008	Botswana	3	4.22E+03	6.94E+08	0.65	0.99	2.14E+09	9.92E+05	
2009	Botswana	3	3.97E+03	2.81E+08	0.66	0.90	2.24E+09	1.02E+06	
2010	Botswana	3	4.19E+03	1.56E+08	0.67	0.98	2.61E+09	1.04E+06	
1996	Burkina faso	4	1.90E+02	5.46E+08	-1.03	0.22	4.54E+08	4.86E+06	1.01E+00
1997	Burkina	4	1.97E+02	5.36E+08			5.22E+08	5.01E+06	9.33E-

Year	Country								
	faso		2	8			8	6	01
1998	Burkina faso	4	2.05E+02	5.83E+08	-0.84	-0.24	5.27E+08	5.17E+06	
1999	Burkina faso	4	2.14E+02	5.85E+08			5.05E+08	5.33E+06	9.12E-01
2000	Burkina faso	4	2.12E+02	3.20E+08	-0.67	-0.14	4.88E+08	5.50E+06	9.87E-01
2001	Burkina faso	4	2.20E+02	6.57E+08			4.17E+08	5.67E+06	1.06E+0
2002	Burkina faso	4	2.24E+02	6.82E+08	-0.68	-0.02	5.14E+08	5.85E+06	1.29E+0
2003	Burkina faso	4	2.35E+02	7.09E+08	-0.56	-0.03	6.15E+08	6.04E+06	1.47E+0
2004	Burkina faso	4	2.39E+02	7.61E+08	-0.56	-0.15	6.81E+08	6.23E+06	
2005	Burkina faso	4	2.52E+02	8.04E+08	-0.51	-0.09		6.43E+06	2.14E+0
2006	Burkina faso	4	2.61E+02	1.01E+09	-0.41	-0.33		6.64E+06	2.27E+0
2007	Burkina faso	4	2.63E+02	9.78E+08	-0.39	-0.35		6.85E+06	2.43E+0
2008	Burkina faso	4	2.70E+02	9.65E+08	-0.33	-0.33		7.08E+06	2.96E+0
2009	Burkina faso	4	2.70E+02	1.08E+09	-0.22	-0.37		7.31E+06	3.29E+0
2010	Burkina faso	4	2.83E+02	1.06E+09	-0.21	-0.38		7.54E+06	3.33E+0
1996	Burundi	5	1.34E+02	1.48E+08	-1.72	-1.39	7.27E+07	2.88E+06	
1997	Burundi	5	1.31E+02	8.37E+07			5.15E+07	2.86E+06	
1998	Burundi	5	1.37E+02	1.04E+08	-1.48	-1.15	5.34E+07	2.84E+06	8.66E-01
1999	Burundi	5	1.34E+02	1.12E+08			4.76E+07	2.87E+06	9.82E-01
2000	Burundi	5	1.31E+02	1.50E+08	-1.56	-1.01	3.53E+07	2.92E+06	1.17E+0
2001	Burundi	5	1.31E+02	2.36E+08			3.76E+07	2.99E+06	1.15E+0
2002	Burundi	5	1.34E+02	2.64E+08	-1.38	-0.94	3.59E+07	3.10E+06	1.82E+0
2003	Burundi	5	1.29E+02	2.96E+08	-1.54	-1.05	6.31E+07	3.23E+06	1.93E+0
2004	Burundi	5	1.31E+02	4.29E+08	-1.60	-0.97	9.29E+07	3.37E+06	2.38E+0
2005	Burundi	5	1.28E+0	4.16E+0	-	-	9.68E+0	3.52E+0	2.41E+0

Year	Country								
			2	8	1.19	0.90	7	6	0
2006	Burundi	5	1.31E+02	4.79E+08	-0.98	1.07	1.75E+08	3.68E+06	2.41E+00
2007	Burundi	5	1.33E+02	4.88E+08	-1.09	-1.12	2.40E+08	3.84E+06	2.45E+00
2008	Burundi	5	1.36E+02	5.05E+08	-1.04	-1.02	3.03E+08	4.01E+06	2.63E+00
2009	Burundi	5	1.37E+02	5.58E+08	-1.16	-1.07	3.42E+08	4.17E+06	2.80E+00
2010	Burundi	5	1.38E+02	6.30E+08	-1.19	-1.06	3.65E+08	4.31E+06	3.25E+00
1996	Cameroon	6	5.87E+02	5.29E+08		-1.16	1.21E+09	5.51E+06	
1997	Cameroon	6	6.03E+02	7.17E+08			1.32E+09	5.67E+06	
1998	Cameroon	6	6.18E+02	7.31E+08		-1.04	1.49E+09	5.84E+06	
1999	Cameroon	6	6.31E+02	6.29E+08			1.60E+09	6.02E+06	4.74E+00
2000	Cameroon	6	6.43E+02	5.97E+08		-1.06	1.61E+09	6.19E+06	4.49E+00
2001	Cameroon	6	6.56E+02	7.49E+08			2.02E+09	6.38E+06	4.52E+00
2002	Cameroon	6	6.67E+02	9.54E+08	-1.25	-1.09	2.10E+09	6.56E+06	4.96E+00
2003	Cameroon	6	6.79E+02	1.14E+09	-1.09	-0.86	1.98E+09	6.75E+06	5.03E+00
2004	Cameroon	6	6.88E+02	9.26E+08	-1.20	-1.08	2.20E+09	6.94E+06	5.03E+00
2005	Cameroon	6	6.89E+02	4.75E+08	-1.18	-1.14	2.21E+09	7.15E+06	5.82E+00
2006	Cameroon	6	6.95E+02	1.91E+09	-1.12	-1.01	2.21E+09	7.35E+06	6.82E+00
2007	Cameroon	6	7.04E+02	1.94E+09	-1.16	-0.94	2.36E+09	7.55E+06	7.33E+00
2008	Cameroon	6	7.08E+02	5.27E+08	-1.09	-0.93		7.77E+06	8.03E+00
2009	Cameroon	6	7.07E+02	6.42E+08	-1.11	-0.93		7.99E+06	9.27E+00
2010	Cameroon	6	7.14E+02	5.41E+08	-1.05	-0.99		8.21E+06	1.15E+01

1996	Capeverde	7	9.29E+02	1.54E+08			2.57E+07	1.43E+05	
1997	Capeverde	7	9.58E+02	1.62E+08			2.47E+07	1.47E+05	
1998	Capeverde	7	1.01E+03	1.93E+08		-	2.39E+07	1.52E+05	

Year	Country								
						0.32			
1999	Capeverde	7	1.08E+03	2.00E+08			2.74E+07	1.57E+05	1.75E+00
2000	Capeverde	7	1.23E+03	1.52E+08		0.13	1.64E+08	1.63E+05	1.91E+00
2001	Capeverde	7	1.29E+03	1.28E+08			1.79E+08	1.68E+05	1.63E+00
2002	Capeverde	7	1.33E+03	1.42E+08	0.19	0.38	2.16E+08	1.74E+05	3.94E+00
2003	Capeverde	7	1.37E+03	1.94E+08	0.14	0.29	2.15E+08	1.81E+05	4.63E+00
2004	Capeverde	7	1.41E+03	1.72E+08	0.27	0.27	2.67E+08	1.87E+05	6.10E+00
2005	Capeverde	7	1.48E+03	1.89E+08	0.31	0.34	2.54E+08	1.93E+05	7.58E+00
2006	Capeverde	7	1.61E+03	1.56E+08	0.57	0.63	3.08E+08	2.00E+05	8.57E+00
2007	Capeverde	7	1.74E+03	1.68E+08	0.56	0.79	4.24E+08	2.06E+05	9.70E+00
2008	Capeverde	7	1.83E+03	2.12E+08	0.51	0.78	4.92E+08	2.12E+05	1.20E+01
2009	Capeverde	7	1.88E+03	1.92E+08	0.48	0.75	4.52E+08	2.18E+05	1.51E+01
2010	Capeverde	7	1.96E+03	3.28E+08	0.42	0.78	4.96E+08	2.25E+05	1.78E+01
1996	Cent.Africa republic	8	2.41E+02	2.11E+08		-1.39	4.61E+07	1.54E+06	
1997	Cent.Africa republic	8	2.48E+02	1.25E+08			9.84E+07	1.58E+06	
1998	Cent.Africa republic	8	2.54E+02	1.71E+08		-1.00	1.43E+08	1.61E+06	
1999	Cent.Africa republic	8	2.58E+02	1.69E+08			1.53E+08	1.65E+06	1.90E+00
2000	Cent.Africa republic	8	2.59E+02	1.10E+08		-1.19	9.13E+07	1.68E+06	1.87E+00
2001	Cent.Africa republic	8	2.55E+02	1.20E+08			8.09E+07	1.71E+06	
2002	Cent.Africa republic	8	2.50E+02	8.98E+07	-1.13	-1.11	9.33E+07	1.74E+06	
2003	Cent.Africa republic	8	2.27E+02	6.68E+07	-1.57	-1.23	6.96E+07	1.77E+06	
2004	Cent.Africa republic	8	2.26E+02	1.29E+08	-1.63	-1.33	7.82E+07	1.81E+06	1.71E+00
2005	Cent.Africa republic	8	2.27E+02	1.02E+08	-1.48	-1.21	1.20E+08	1.84E+06	1.64E+00
2006	Cent.Africa republic	8	2.32E+02	1.49E+08	-1.49	-1.00	1.37E+08	1.88E+06	1.13E+00
2007	Cent.Africa republic	8	2.36E+02	1.79E+08	-1.52	-0.97	1.52E+08	1.92E+06	
2008	Cent.Africa republic	8	2.37E+02	2.51E+08	-1.43	-0.98	2.31E+08	1.97E+06	2.28E+00
2009	Cent.Africa republic	8	2.36E+02	2.40E+08	-1.32	-0.91	2.13E+08	2.01E+06	2.45E+00
2010	Cent.Africa republic	8	2.40E+02	2.61E+08	-1.30	-0.84		2.06E+06	2.57E+00
1996	chad	9	1.72E+02	3.82E+08		-0.93	1.86E+08	2.83E+06	5.47E-01

Year	Country								
1997	chad	9	1.77E+02	3.23E+08			2.15E+08	2.92E+06	5.80E-01
1998	chad	9	1.83E+02	2.50E+08		-0.94	1.99E+08	3.01E+06	7.04E-01
1999	chad	9	1.76E+02	2.71E+08			2.37E+08	3.11E+06	
2000	chad	9	1.68E+02	2.07E+08		-0.82	2.90E+08	3.22E+06	8.16E-01
2001	chad	9	1.82E+02	3.07E+08			5.66E+08	3.33E+06	8.11E-01
2002	chad	9	1.90E+02	3.49E+08	-1.00	-0.94	1.00E+09	3.45E+06	
2003	chad	9	2.10E+02	3.28E+08	-1.31	-1.26	9.35E+08	3.58E+06	9.10E-01
2004	chad	9	2.71E+02	3.94E+08	-1.34	-1.28	5.85E+08	3.70E+06	1.19E+00
2005	chad	9	3.08E+02	4.43E+08	-1.45	-1.43	4.23E+08	3.83E+06	1.41E+00
2006	chad	9	3.00E+02	3.24E+08	-1.48	-1.27	3.43E+08	3.95E+06	
2007	chad	9	2.92E+02	3.69E+08	-1.48	-1.30	8.06E+08	4.06E+06	
2008	chad	9	2.83E+02	4.05E+08	-1.57	-1.45	1.19E+09	4.18E+06	1.97E+00
2009	chad	9	2.73E+02	5.57E+08	-1.51	-1.35	2.00E+09	4.30E+06	2.06E+00
2010	chad	9	3.00E+02	4.86E+08	-1.50	-1.33	2.24E+09	4.42E+06	2.17E+00

Year	Country								
1996	Comoros	10	3.66E+02	5.01E+07		-0.93	3.14E+07	1.56E+05	7.61E-01
1997	Comoros	10	3.71E+02	4.25E+07			2.84E+07	1.61E+05	
1998	Comoros	10	3.66E+02	5.73E+07		-1.31	3.17E+07	1.67E+05	
1999	Comoros	10	3.63E+02	3.17E+07			2.65E+07	1.73E+05	1.22E+00
2000	Comoros	10	3.59E+02	3.12E+07		-1.12	2.04E+07	1.80E+05	1.28E+00
2001	Comoros	10	3.61E+02	4.48E+07			2.21E+07	1.85E+05	
2002	Comoros	10	3.66E+02	4.23E+07	-1.04	-0.87	2.77E+07	1.91E+05	
2003	Comoros	10	3.65E+02	3.20E+07	-0.97	-0.84	3.34E+07	1.98E+05	2.66E+00
2004	Comoros	10	3.55E+02	3.10E+07	-1.06	-0.84	3.39E+07	2.04E+05	2.68E+00
2005	Comoros	10	3.60E+02	2.65E+07	-1.03	-0.82	3.60E+07	2.10E+05	
2006	Comoros	10	3.55E+02	3.59E+07	-0.98	-0.64	3.88E+07	2.16E+05	

Year	Country								
2007	Comoros	10	3.47E+02	4.56E+07	-1.03	-0.65	5.19E+07	2.23E+05	3.86E+00
2008	Comoros	10	3.41E+02	3.94E+07	-1.07	-0.75	7.57E+07	2.29E+05	
2009	Comoros	10	3.38E+02	4.93E+07	-1.15	-0.78	6.64E+07	2.36E+05	7.08E+00
2010	Comoros	10	3.36E+02	6.72E+07	-1.06	-0.74		2.42E+05	7.92E+00
1996	Congo, Dem. Rep.	11	1.15E+02	2.16E+08		-2.06	1.74E+08	1.69E+07	
1997	Congo, Dem. Rep.	11	1.06E+02	2.30E+08			1.54E+08	1.73E+07	
1998	Congo, Dem. Rep.	11	1.02E+02	1.85E+08		-1.90	1.53E+08	1.77E+07	
1999	Congo, Dem. Rep.	11	9.55E+01	1.96E+08			1.63E+08	1.81E+07	1.40E+00
2000	Congo, Dem. Rep.	11	8.68E+01	2.86E+08		-1.57	1.49E+08	1.85E+07	
2001	Congo, Dem. Rep.	11	8.27E+01	3.98E+08			2.43E+08	1.90E+07	
2002	Congo, Dem. Rep.	11	8.31E+01	1.75E+09	-1.69	-1.26	2.54E+08	1.96E+07	
2003	Congo, Dem. Rep.	11	8.53E+01	6.94E+09	-1.73	-1.41	6.94E+08	2.02E+07	
2004	Congo, Dem. Rep.	11	8.83E+01	2.20E+09	-1.70	-1.43	8.33E+08	2.08E+07	
2005	Congo, Dem. Rep.	11	9.24E+01	2.16E+09	-1.57	-1.43	1.01E+09	2.15E+07	
2006	Congo, Dem. Rep.	11	9.48E+01	2.40E+09	-1.61	-1.48	1.11E+09	2.22E+07	4.19E+00
2007	Congo, Dem. Rep.	11	9.79E+01	1.37E+09	-1.60	-1.31	1.95E+09	2.29E+07	4.19E+00
2008	Congo, Dem.	11	1.01E+02	1.70E+09	-1.56	-1.17	2.78E+09	2.37E+07	5.24E+00

Year	Country								
	Rep.								
2009	Congo, Dem. Rep.	11	1.01E+02	2.37E+09	-1.63	-1.38	3.22E+09	2.45E+07	6.19E+00
2010	Congo, Dem. Rep.	11	1.06E+02	3.54E+09	-1.61	-1.39		2.53E+07	
1996	Congo, Rep.	12	1.06E+03	5.89E+08		-1.11	6.57E+08	1.09E+06	
1997	Congo, Rep.	12	1.02E+03	3.91E+08			5.02E+08	1.13E+06	
1998	Congo, Rep.	12	1.03E+03	9.22E+07		-1.13	4.74E+08	1.17E+06	
1999	Congo, Rep.	12	9.79E+02	2.16E+08			6.26E+08	1.21E+06	3.67E+00
2000	Congo, Rep.	12	1.03E+03	5.21E+07		-0.96	6.73E+08	1.25E+06	5.20E+00
2001	Congo, Rep.	12	1.04E+03	1.14E+08			7.34E+08	1.29E+06	4.35E+00
2002	Congo, Rep.	12	1.06E+03	8.93E+07	-1.24	-0.87	6.81E+08	1.32E+06	3.87E+00
2003	Congo, Rep.	12	1.05E+03	8.88E+07	-1.18	-0.94	8.91E+08	1.36E+06	3.89E+00
2004	Congo, Rep.	12	1.06E+03	1.35E+08	-1.15	-0.84	1.02E+09	1.40E+06	
2005	Congo, Rep.	12	1.11E+03	1.66E+09	-1.46	-1.02	1.20E+09	1.44E+06	
2006	Congo, Rep.	12	1.15E+03	2.90E+08	-1.24	-1.05	1.64E+09	1.49E+06	
2007	Congo, Rep.	12	1.10E+03	1.22E+08	-1.21	-1.09	1.80E+09	1.54E+06	
2008	Congo, Rep.	12	1.13E+03	4.57E+08	-1.17	-1.13	2.14E+09	1.59E+06	
2009	Congo, Rep.	12	1.18E+03	2.75E+08	-1.15	-1.21	2.13E+09	1.64E+06	6.47E+00
2010	Congo, Rep.	12	1.25E+03	1.31E+09	-1.15	-1.15	2.43E+09	1.69E+06	5.51E+00

Year	Country								
1996	Cote d'Ivoire	13	6.37E+02	1.24E+09		0.20	1.39E+09	5.73E+06	
1997	Cote d'Ivoire	13	6.56E+02	6.31E+08			1.51E+09	5.90E+06	
1998	Cote d'Ivoire	13	6.71E+02	1.42E+09		-0.30	1.75E+09	6.07E+06	
1999	Cote	13	6.66E+02	6.50E+08			1.60E+09	6.24E+06	6.37E+00

	d'Ivoire								
2000	Cote d'Ivoire	13	6.28E+02	5.60E+08		-0.69	1.17E+09	6.39E+06	6.63E+00
2001	Cote d'Ivoire	13	6.17E+02	3.28E+08			1.03E+09	6.51E+06	
2002	Cote d'Ivoire	13	5.98E+02	1.69E+09	-1.38	-0.82	1.14E+09	6.63E+06	
2003	Cote d'Ivoire	13	5.79E+02	3.27E+08	-1.46	-0.98	9.80E+08	6.75E+06	
2004	Cote d'Ivoire	13	5.80E+02	1.90E+08	-1.42	-1.22	1.00E+09	6.86E+06	
2005	Cote d'Ivoire	13	5.78E+02	1.06E+08	-1.50	-1.24	1.01E+09	6.99E+06	
2006	Cote d'Ivoire	13	5.72E+02	2.78E+08	-1.47	-1.18	1.62E+09	7.12E+06	8.56E+00
2007	Cote d'Ivoire	13	5.72E+02	1.82E+08	-1.50	-1.07	1.72E+09	7.27E+06	8.87E+00
2008	Cote d'Ivoire	13	5.75E+02	6.10E+08	-1.46	-1.09	2.37E+09	7.42E+06	
2009	Cote d'Ivoire	13	5.86E+02	2.36E+09	-1.24	-1.10	2.62E+09	7.60E+06	
2010	Cote d'Ivoire	13	5.88E+02	8.45E+08	-1.22	-1.16	3.16E+09	7.79E+06	
1996	Djibouti	14	8.39E+02	1.22E+08		-0.47	4.91E+07	1.76E+05	2.19E-01
1997	Djibouti	14	8.06E+02	1.20E+08			5.14E+07	1.84E+05	2.64E-01
1998	Djibouti	14	7.80E+02	1.15E+08		-0.73	6.55E+07	1.92E+05	
1999	Djibouti	14	7.71E+02	1.08E+08			4.73E+07	2.01E+05	2.68E-01
2000	Djibouti	14	7.53E+02	1.08E+08		-0.95	4.85E+07	2.10E+05	2.80E-01
2001	Djibouti	14	7.50E+02	9.59E+07			4.43E+07	2.17E+05	7.05E-01
2002	Djibouti	14	7.54E+02	1.12E+08	-0.88	-0.71	5.80E+07	2.25E+05	1.00E+00
2003	Djibouti	14	7.64E+02	1.02E+08	-0.85	-0.84	8.59E+07	2.32E+05	1.21E+00
2004	Djibouti	14	7.79E+02	7.52E+07	-0.80	-0.51	1.33E+08	2.40E+05	1.47E+00
2005	Djibouti	14	7.89E+02	8.56E+07	-0.91	-0.68	1.21E+08	2.48E+05	2.14E+00
2006	Djibouti	14	8.12E+02	1.29E+08	-0.82	-0.62	1.98E+08	2.56E+05	2.36E+00
2007	Djibouti	14	8.37E+02	1.15E+08	-0.70	-0.47		2.65E+05	2.61E+00
2008	Djibouti	14	8.69E+02	1.36E+08	-0.59	-0.19		2.74E+05	

Year	Country								
2009	Djibouti	14	8.95E+02	1.66E+08	-0.65	-0.28		2.83E+05	3.45E+00
2010	Djibouti	14		1.32E+08	-0.72	-0.32		2.92E+05	
1996	Equatorial Guinea	15	8.19E+02	4.30E+07	-1.17	-1.25	2.94E+08	2.30E+05	
1997	Equatorial Guinea	15	1.36E+03	3.81E+07			3.27E+08	2.37E+05	
1998	Equatorial Guinea	15	1.60E+03	3.52E+07	-1.44	-1.21	4.17E+08	2.44E+05	
1999	Equatorial Guinea	15	2.19E+03	3.18E+07				2.51E+05	
2000	Equatorial Guinea	15	2.41E+03	3.87E+07	-1.30	-1.53	7.69E+08	2.60E+05	3.29E+00
2001	Equatorial Guinea	15	3.78E+03	2.47E+07			1.25E+09	2.70E+05	
2002	Equatorial Guinea	15	4.38E+03	3.33E+07	-1.39	-1.34	6.95E+08	2.80E+05	
2003	Equatorial Guinea	15	4.83E+03	2.87E+07	-1.35	-1.55	1.23E+09	2.91E+05	
2004	Equatorial Guinea	15	6.47E+03	3.53E+07	-1.45	-1.71	2.12E+09	3.02E+05	
2005	Equatorial Guinea	15	6.89E+03	4.47E+07	-1.43	-1.61	3.09E+09	3.13E+05	
2006	Equatorial Guinea	15	6.77E+03	2.94E+07	-1.35	-1.53	3.01E+09	3.24E+05	
2007	Equatorial Guinea	15	8.00E+03	3.15E+07	-1.28	-1.54	4.19E+09	3.35E+05	
2008	Equatorial Guinea	15	8.60E+03	3.02E+07	-1.24	-1.51	5.23E+09	3.46E+05	
2009	Equatorial Guinea	15	8.85E+03	3.04E+07	-1.24	-1.50	7.36E+09	3.57E+05	
2010	Equatorial Guinea	15	8.54E+03	8.47E+07	-1.26	-1.50		3.69E+05	

Year	Country								
1996	Eritrea	16	2.03E+02	2.19E+08	-0.38	0.44	1.34E+08	1.40E+06	8.16E-01
1997	Eritrea	16	2.15E+02	1.79E+08			1.61E+08	1.44E+06	
1998	Eritrea	16	2.13E+02	2.44E+08	-0.23	0.85	1.79E+08	1.50E+06	7.78E-01
1999	Eritrea	16	2.06E+02	2.23E+08			1.88E+08	1.57E+06	9.46E-01
2000	Eritrea	16	1.73E+02	2.75E+08	-0.47	0.61	1.51E+08	1.66E+06	9.58E-01
2001	Eritrea	16	2.01E+02	4.57E+08			1.47E+08	1.75E+06	1.26E+00
2002	Eritrea	16	1.99E+02	3.36E+08	-	0.06	1.51E+08	1.86E+06	1.25E+00

Year	Country								
					0.39				
2003	Eritrea	16	1.86E+02	4.08E+08	-0.51	-0.07	1.18E+08	1.97E+06	1.29E+00
2004	Eritrea	16	1.81E+02	3.15E+08	-0.69	-0.15	1.16E+08	2.08E+06	1.02E+00
2005	Eritrea	16	1.79E+02	3.99E+08	-0.84	-0.21	1.43E+08	2.18E+06	
2006	Eritrea	16	1.71E+02	1.42E+08	-1.08	-0.25	1.41E+08	2.27E+06	
2007	Eritrea	16	1.68E+02	1.63E+08	-1.21	-0.50	1.41E+08	2.36E+06	
2008	Eritrea	16	1.47E+02	1.41E+08	-1.22	-0.32		2.44E+06	
2009	Eritrea	16	1.48E+02	1.45E+08	-1.25	-0.41		2.52E+06	1.98E+00
2010	Eritrea	16	1.47E+02	1.61E+08	-1.29	-0.47		2.60E+06	1.99E+00
1996	Ethiopia	17	1.25E+02	1.07E+09	-0.91	-1.15	1.24E+09	2.57E+07	6.94E-01
1997	Ethiopia	17	1.26E+02	8.29E+08			1.65E+09	2.64E+07	8.15E-01
1998	Ethiopia	17	1.18E+02	9.66E+08	-0.79	-0.69	1.67E+09	2.72E+07	8.58E-01
1999	Ethiopia	17	1.21E+02	9.30E+08			1.74E+09	2.79E+07	9.69E-01
2000	Ethiopia	17	1.25E+02	1.04E+09	-0.87	-0.49	1.66E+09	2.90E+07	1.22E+00
2001	Ethiopia	17	1.32E+02	1.70E+09			1.84E+09	3.01E+07	1.53E+00
2002	Ethiopia	17	1.30E+02	1.94E+09	-0.91	-0.73	2.07E+09	3.12E+07	1.73E+00
2003	Ethiopia	17	1.24E+02	2.05E+09	-0.80	-0.68	1.87E+09	3.24E+07	2.43E+00
2004	Ethiopia	17	1.38E+02	2.12E+09	-0.81	-0.72	2.32E+09	3.36E+07	2.73E+00
2005	Ethiopia	17	1.50E+02	2.19E+09	-0.86	-0.76	2.35E+09	3.49E+07	2.92E+00
2006	Ethiopia	17	1.63E+02	2.24E+09	-0.61	-0.62	2.78E+09	3.60E+07	2.65E+00
2007	Ethiopia	17	1.78E+02	2.57E+09	-0.59	-0.60	3.52E+09	3.71E+07	3.61E+00
2008	Ethiopia	17	1.92E+02	3.24E+09	-0.65	-0.67	3.46E+09	3.83E+07	3.60E+00
2009	Ethiopia	17	2.05E+02	3.85E+09	-0.78	-0.74	4.68E+09	3.95E+07	4.19E+00
2010	Ethiopia	17	2.21E+02	3.53E+09	-0.75	-0.73	4.39E+09	4.08E+07	5.46E+00
1996	Gabon	18	4.64E+03	1.64E+08	-0.63	-1.02	1.22E+09	4.02E+05	

1997	Gabon	18	4.77E+03	5.74E+07			1.67E+09	4.12E+05	
1998	Gabon	18	4.81E+03	6.52E+07	-0.34	-0.87	1.89E+09	4.22E+05	
1999	Gabon	18	4.28E+03	7.18E+07			1.21E+09	4.32E+05	7.05E+00
2000	Gabon	18	4.10E+03	1.94E+07	-0.16	-0.50	1.11E+09	4.43E+05	
2001	Gabon	18	4.10E+03	1.23E+07			1.23E+09	4.55E+05	
2002	Gabon	18	4.00E+03	1.13E+08	-0.21	-0.42	1.14E+09	4.67E+05	
2003	Gabon	18	4.02E+03	-1.48E+07	-0.39	-0.47	1.13E+09	4.80E+05	
2004	Gabon	18	3.99E+03	4.72E+07	-0.51	-0.76	1.52E+09	4.92E+05	
2005	Gabon	18	4.03E+03	7.01E+07	-0.46	-0.54	1.41E+09	5.05E+05	
2006	Gabon	18	4.00E+03	3.27E+07	-0.70	-0.95	1.52E+09	5.21E+05	
2007	Gabon	18	4.14E+03	5.19E+07	-0.66	-1.02	1.64E+09	5.37E+05	
2008	Gabon	18	4.16E+03	5.88E+07	-0.60	-1.02	1.74E+09	5.53E+05	
2009	Gabon	18	4.03E+03	7.51E+07	-0.55	-0.93	1.89E+09	5.70E+05	
2010	Gabon	18	4.21E+03	1.04E+08	-0.51	-0.77	2.07E+09	5.88E+05	

1996	Gambia, The	19	5.57E+02	4.70E+07	0.11	-0.44	3.68E+07	4.78E+05	
1997	Gambia, The	19	5.68E+02	5.44E+07			3.02E+07	4.93E+05	
1998	Gambia, The	19	5.72E+02	5.56E+07	0.04	-0.53	2.66E+07	5.10E+05	
1999	Gambia, The	19	5.92E+02	4.78E+07			2.75E+07	5.26E+05	9.81E-01
2000	Gambia, The	19	6.06E+02	7.34E+07	-0.13	-0.41	3.59E+07	5.44E+05	9.62E-01
2001	Gambia, The	19	6.23E+02	8.05E+07			3.70E+07	5.61E+05	
2002	Gambia, The	19	5.85E+02	9.52E+07	-0.29	-0.44	3.74E+07	5.81E+05	
2003	Gambia, The	19	6.07E+02	8.01E+07	0.16	-0.33	3.74E+07	6.00E+05	
2004	Gambia, The	19	6.31E+02	7.13E+07	-0.30	-0.59	4.00E+07	6.20E+05	1.06E+00
2005	Gambia,	19	6.14E+02	6.94E+07	-	-	3.57E+07	6.40E+05	

Year	Country								
	The				0.28	0.71			
2006	Gambia, The	19	6.17E+02	8.44E+07	-0.30	-0.74	4.08E+07	6.61E+05	
2007	Gambia, The	19	6.36E+02	1.00E+08	-0.24	-0.77	3.32E+07	6.82E+05	
2008	Gambia, The	19	6.57E+02	9.16E+07	-0.36	-0.75	2.70E+07	7.04E+05	4.12E+00
2009	Gambia, The	19	6.82E+02	1.28E+08	-0.45	-0.56	3.70E+07	7.28E+05	
2010	Gambia, The	19	7.04E+02	1.20E+08	-0.51	-0.56	4.24E+07	7.51E+05	
1996	Ghana	20	2.42E+02	8.33E+08	-0.34	-0.22	1.41E+09		
1997	Ghana	20	2.46E+02	6.80E+08			1.64E+09		
1998	Ghana	20	2.51E+02	9.80E+08	-0.44	-0.17	1.67E+09		
1999	Ghana	20	2.56E+02	8.28E+08			1.58E+09		
2000	Ghana	20	2.60E+02	8.50E+08	0.09	-0.07	1.15E+09		
2001	Ghana	20	2.64E+02	9.80E+08			1.44E+09		
2002	Ghana	20	2.69E+02	9.95E+08	-0.02	-0.29	1.16E+09		
2003	Ghana	20	2.76E+02	1.25E+09	0.00	-0.24	1.75E+09		
2004	Ghana	20	2.85E+02	1.62E+09	-0.15	-0.23	2.52E+09		
2005	Ghana	20	2.94E+02	1.31E+09	-0.14	-0.36	3.11E+09		5.65E+00
2006	Ghana	20	3.05E+02	1.37E+09	0.02	-0.01	4.41E+09		5.08E+00
2007	Ghana	20	3.17E+02	1.18E+09	0.01	0.06	4.95E+09		6.32E+00
2008	Ghana	20	3.36E+02	1.26E+09	-0.09	-0.03	6.12E+09		8.41E+00
2009	Ghana	20	3.41E+02	1.59E+09	-0.09	-0.06	5.12E+09		8.80E+00
2010	Ghana	20	3.60E+02	1.69E+09	-0.07	0.08	7.01E+09		
1996	Guinea	21	3.41E+02	5.44E+08	-1.51	-0.46	6.03E+08	3.07E+06	1.16E+00
1997	Guinea	21	3.49E+02	5.12E+08			6.36E+08	3.14E+06	1.19E+00
1998	Guinea	21	3.60E+02	3.37E+08	-1.27	-0.73	5.93E+08	3.19E+06	1.21E+00
1999	Guinea	21	3.71E+02	2.26E+08			6.28E+08	3.24E+06	
2000	Guinea	21	3.73E+02	4.43E+08	-1.42	-0.75	5.87E+08	3.29E+06	

2001	Guinea	21	3.78E+02	3.71E+08			4.58E+08	3.35E+06	
2002	Guinea	21	3.86E+02	3.26E+08	-0.98	-0.52	4.34E+08	3.42E+06	
2003	Guinea	21	4.01E+02	3.27E+08	-1.11	-0.75	3.44E+08	3.47E+06	2.22E+00
2004	Guinea	21	4.03E+02	2.28E+08	-1.24	-0.84	3.89E+08	3.54E+06	2.22E+00
2005	Guinea	21	5.46E+02	1.91E+08	-1.36	-1.01	4.05E+08	3.62E+06	3.00E+00
2006	Guinea	21	5.50E+02	2.36E+08	-1.42	-1.04	3.56E+08	3.70E+06	5.26E+00
2007	Guinea	21	5.49E+02	3.19E+08	-1.46	-1.24	3.91E+08	3.79E+06	8.23E+00
2008	Guinea	21	5.65E+02	2.10E+08	-1.54	-1.15	4.42E+08	3.87E+06	9.46E+00
2009	Guinea	21	5.52E+02	2.18E+08	-1.54	-1.05	6.39E+08	3.98E+06	
2010	Guinea	21	5.50E+02		-1.50	-1.20	7.12E+08	4.09E+06	

1996	Guinea-Bissau	22	2.12E+02	2.45E+08	-2.03	-1.09	6.23E+07	4.43E+05	
1997	Guinea-Bissau	22	2.21E+02	1.79E+08			6.45E+07	4.53E+05	
1998	Guinea-Bissau	22	1.56E+02	1.38E+08	-2.07	-1.14	2.34E+07	4.76E+05	
1999	Guinea-Bissau	22	1.65E+02	7.88E+07			3.77E+07	4.88E+05	4.60E-01
2000	Guinea-Bissau	22	1.74E+02	1.35E+08	-1.39	-0.97	2.43E+07	4.98E+05	4.19E-01
2001	Guinea-Bissau	22	1.71E+02	1.04E+08			2.99E+07	5.12E+05	4.11E-01
2002	Guinea-Bissau	22	1.56E+02	9.38E+07	-1.20	-0.85	1.96E+07	5.27E+05	
2003	Guinea-Bissau	22	1.52E+02	1.98E+08	-1.18	-1.07		5.42E+05	
2004	Guinea-Bissau	22	1.52E+02	9.02E+07	-1.18	-1.14		5.55E+05	
2005	Guinea-Bissau	22	1.54E+02	7.64E+07	-1.28	-1.10		5.68E+05	2.34E+00
2006	Guinea-Bissau	22	1.54E+02	9.73E+07	-1.27	-0.98		5.83E+05	2.72E+00
2007	Guinea-Bissau	22	1.56E+02	1.24E+08	-1.34	-1.14		5.99E+05	
2008	Guinea-	22	1.58E+02	1.28E+08	-1.42	-1.09		6.15E+05	

	Bissau								
2009	Guinea-Bissau	22	1.59E+02	1.43E+08	-1.36	-1.11		6.32E+05	
2010	Guinea-Bissau	22	1.61E+02	1.39E+08	-1.35	-1.07		6.48E+05	
1996	Kenya	23	4.21E+02	7.55E+08	-1.04	-1.03	1.77E+09	1.08E+07	
1997	Kenya	23	4.12E+02	6.21E+08			1.83E+09	1.11E+07	
1998	Kenya	23	4.15E+02	5.80E+08	-1.13	-1.02	1.97E+09	1.13E+07	
1999	Kenya	23	4.14E+02	4.18E+08			1.96E+09	1.16E+07	
2000	Kenya	23	4.06E+02	7.31E+08	-0.90	-0.95	2.12E+09	1.19E+07	2.75E+00
2001	Kenya	23	4.11E+02	7.24E+08			2.38E+09	1.21E+07	2.82E+00
2002	Kenya	23	4.02E+02	5.57E+08	-0.91	-0.99	2.24E+09	1.24E+07	2.82E+00
2003	Kenya	23	4.03E+02	6.55E+08	-0.89	-0.83	2.06E+09	1.27E+07	
2004	Kenya	23	4.13E+02	7.67E+08	-0.86	-0.80	2.21E+09	1.30E+07	2.92E+00
2005	Kenya	23	4.26E+02	8.56E+08	-0.90	-0.98	2.82E+09	1.32E+07	2.96E+00
2006	Kenya	23	4.42E+02	1.04E+09	-0.88	-0.87	3.35E+09	1.37E+07	
2007	Kenya	23	4.61E+02	1.35E+09	-0.97	-0.91	3.80E+09	1.41E+07	
2008	Kenya	23	4.56E+02	1.33E+09	-1.02	-1.02	4.17E+09	1.45E+07	
2009	Kenya	23	4.56E+02	1.79E+09	-1.07	-1.07	4.16E+09	1.50E+07	4.03E+00
2010	Kenya	23	4.69E+02	1.63E+09	-1.01	-0.93	4.46E+09	1.55E+07	
1996	Lesotho	24	3.52E+02	1.34E+08	0.00	-0.47	4.94E+08	7.78E+05	2.67E+00
1997	Lesotho	24	3.57E+02	1.30E+08			4.24E+08	8.00E+05	
1998	Lesotho	24	3.70E+02	8.61E+07	0.11	-0.07	3.45E+08	8.21E+05	
1999	Lesotho	24	3.65E+02	4.39E+07			3.16E+08	8.42E+05	1.99E+00
2000	Lesotho	24	3.80E+02	5.84E+07	0.04	-0.12	3.17E+08	8.48E+05	2.13E+00
2001	Lesotho	24	3.91E+02	8.54E+07			2.94E+08	8.51E+05	2.30E+00
2002	Lesotho	24	3.91E+02	1.13E+08	0.00	-0.18	2.69E+08	8.52E+05	2.26E+00
2003	Lesotho	24	4.04E+02	9.99E+07	-0.01	-0.39	2.78E+08	8.51E+05	2.69E+00
2004	Lesotho	24	4.09E+02	1.12E+08	-0.15	-0.19	2.12E+08	8.49E+05	
2005	Lesotho	24	4.17E+02	7.51E+07	-0.17	-0.04	1.77E+08	8.50E+05	3.34E+00
2006	Lesotho	24	4.30E+02	7.62E+07	-0.26	-0.05	1.90E+08	8.52E+05	3.52E+00
2007	Lesotho	24	4.46E+02	1.29E+08	-0.35	-0.12	2.12E+08	8.55E+05	
2008	Lesotho	24	4.66E+02	1.39E+08	-0.26	0.03	3.01E+08	8.60E+05	
2009	Lesotho	24	4.74E+02	1.21E+08	-0.23	0.16	2.98E+08	8.76E+05	
2010	Lesotho	24	4.96E+02	2.56E+08	-0.30	0.18	3.27E+08	8.94E+05	

1996	Liberia	25	5.81E+01	2.16E+08	-2.23	-1.74		7.35E+05	
1997	Liberia	25	1.12E+02	1.09E+08				7.91E+05	
1998	Liberia	25	1.35E+02	1.07E+08	-2.11	-1.73		8.54E+05	

Year	Country							
1999	Liberia	25	1.55E+02	1.31E+08				9.14E+05	8.14E+00
2000	Liberia	25	1.86E+02	9.92E+07	-2.12	-1.37	3.97E+07	9.64E+05	1.91E+01
2001	Liberia	25	2.20E+02	5.78E+07			1.22E+07	9.97E+05	
2002	Liberia	25	2.84E+02	7.97E+07	-1.86	-1.17	1.60E+07	1.02E+06	
2003	Liberia	25	1.88E+02	1.38E+08	-1.69	-1.22	7.20E+06	1.03E+06	
2004	Liberia	25	1.76E+02	2.48E+08	-1.71	-1.27	1.35E+07	1.06E+06	
2005	Liberia	25	1.87E+02	2.53E+08	-1.37	-1.04	2.25E+07	1.09E+06	
2006	Liberia	25	1.97E+02	2.88E+08	-0.87	-0.47	3.11E+07	1.14E+06	
2007	Liberia	25	2.17E+02	7.24E+08	-1.01	-0.33	3.24E+07	1.19E+06	
2008	Liberia	25	2.28E+02	1.21E+09	-1.19	-0.66	2.72E+07	1.26E+06	
2009	Liberia	25	2.46E+02	5.13E+08	-1.08	-0.54	4.23E+07	1.32E+06	
2010	Liberia	25	2.61E+02	1.42E+09	-1.01	-0.51	7.18E+07	1.37E+06	
1996	Madagascar	26	2.42E+02	4.54E+08	-0.53	0.21	4.02E+08	6.48E+06	2.22E+00
1997	Madagascar	26	2.43E+02	1.21E+09			4.25E+08	6.68E+06	2.01E+00
1998	Madagascar	26	2.45E+02	6.95E+08	-0.58	-0.55	5.03E+08	6.88E+06	2.27E+00
1999	Madagascar	26	2.49E+02	5.05E+08			5.10E+08	7.08E+06	2.19E+00
2000	Madagascar	26	2.52E+02	4.77E+08	-0.2	-0.1	5.83E+08	7.30E+06	2.26E+00

					5	3			
2001	Madagascar	26	2.59E+02	5.76E+08			7.17E+08	7.53E+06	2.15E+00
2002	Madagascar	26	2.20E+02	5.56E+08	-0.27	0.06	4.48E+08	7.79E+06	2.23E+00
2003	Madagascar	26	2.34E+02	7.06E+08	-0.20	0.06	6.00E+08	8.04E+06	2.45E+00
2004	Madagascar	26	2.39E+02	1.49E+09	-0.20	-0.12	9.29E+08	8.31E+06	2.84E+00
2005	Madagascar	26	2.43E+02	1.05E+09	-0.32	0.10	8.44E+08	8.58E+06	2.93E+00
2006	Madagascar	26	2.47E+02	8.78E+08	-0.43	-0.12	1.01E+09	8.87E+06	3.09E+00
2007	Madagascar	26	2.55E+02	9.44E+08	-0.37	-0.10	1.32E+09	9.17E+06	3.45E+00
2008	Madagascar	26	2.65E+02	8.19E+08	-0.45	-0.16	1.86E+09	9.49E+06	3.34E+00
2009	Madagascar	26	2.46E+02	4.41E+08	-0.72	-0.20	1.45E+09	9.81E+06	3.53E+00
2010	Madagascar	26	2.43E+02	4.70E+08	-0.85	-0.29		1.01E+07	3.69E+00
1996	Malawi	27	1.53E+02	6.34E+08	-0.45	-0.22	2.22E+08	4.30E+06	5.69E-01
1997	Malawi	27	1.55E+02	4.77E+08			2.48E+08	4.39E+06	
1998	Malawi	27	1.57E+02	6.18E+08	-0.48	-0.19	1.94E+08	4.50E+06	
1999	Malawi	27	1.57E+02	6.29E+08			2.24E+08	4.65E+06	2.98E-01
2000	Malawi	27	1.55E+02	6.43E+08	-0.50	-0.21	2.15E+08	4.82E+06	3.28E-01
2001	Malawi	27	1.44E+02	6.33E+08			2.37E+08	4.98E+06	3.74E-01
2002	Malawi	27	1.42E+0	5.50E+0	-	-		5.15E+0	4.09E-01

			2	8	0.4 7	1.0 1		6	
2003	Malawi	27	1.46E+0 2	6.58E+0 8	- 0.2 5	- 0.7 8	3.43E+0 8	5.33E+0 6	4.25E-01
2004	Malawi	27	1.50E+0 2	5.79E+0 8	- 0.1 2	- 0.7 6	4.26E+0 8	5.52E+0 6	5.07E-01
2005	Malawi	27	1.50E+0 2	6.46E+0 8	- 0.1 2	- 0.7 4	5.56E+0 8	5.72E+0 6	4.95E-01
2006	Malawi	27	1.57E+0 2	7.79E+0 8	- 0.2 5	- 0.5 4	7.08E+0 8	5.92E+0 6	5.17E-01
2007	Malawi	27	1.61E+0 2	7.48E+0 8	- 0.1 9	- 0.5 4	8.29E+0 8	6.06E+0 6	5.10E-01
2008	Malawi	27	1.70E+0 2	8.89E+0 8	- 0.1 4	- 0.4 3	9.48E+0 8	6.31E+0 6	
2009	Malawi	27	1.79E+0 2	7.82E+0 8	- 0.1 3	- 0.3 9	1.03E+0 9	6.51E+0 6	
2010	Malawi	27	1.85E+0 2	1.02E+0 9	- 0.1 5	- 0.4 3	1.10E+0 9	6.71E+0 6	7.20E-01

199 6	Mali	2 8	1.92E+0 2	6.35E+0 8	- 0.5 3	- 0.4 4	4.47E+0 8	2.72E+0 6	1.07E+0 0
199 7	Mali	2 8	2.00E+0 2	6.10E+0 8			3.99E+0 8	2.80E+0 6	1.50E+0 0
199 8	Mali	2 8	2.06E+0 2	5.02E+0 8	- 0.5 2	- 0.6 3	4.24E+0 8	2.88E+0 6	1.49E+0 0
199 9	Mali	2 8	2.14E+0 2	5.17E+0 8			4.43E+0 8	2.97E+0 6	1.81E+0 0
200 0	Mali	2 8	2.14E+0 2	4.57E+0 8	- 0.4 6	- 0.6 6	5.95E+0 8	3.06E+0 6	1.85E+0 0
200 1	Mali	2 8	2.33E+0 2	5.65E+0 8			9.25E+0 8	3.15E+0 6	1.98E+0 0
200 2	Mali	2 8	2.36E+0 2	6.44E+0 8	- 0.3 2	- 0.5 3	6.60E+0 8	3.26E+0 6	1.99E+0 0

Year	Country								
2003	Mali	28	2.45E+02	7.30E+08	-0.03	-0.54	1.01E+09	3.37E+06	2.19E+00
2004	Mali	28	2.43E+02	7.04E+08	-0.17	-0.50	8.10E+08	3.49E+06	2.37E+00
2005	Mali	28	2.50E+02	8.37E+08	-0.14	-0.40	9.30E+08	3.61E+06	2.68E+00
2006	Mali	28	2.55E+02	9.72E+08	-0.31	-0.41	9.79E+08	3.74E+06	
2007	Mali	28	2.58E+02	1.04E+09	-0.21	-0.34	1.04E+09	3.87E+06	5.07E+00
2008	Mali	28	2.63E+02	9.39E+08	-0.35	-0.45		4.01E+06	5.09E+00
2009	Mali	28	2.66E+02	9.91E+08	-0.38	-0.67		4.15E+06	5.61E+00
2010	Mali	28	2.73E+02	1.09E+09	-0.46	-0.68		4.30E+06	5.80E+00
1996	Mauritania	29	5.10E+02	3.49E+08	-0.39	-0.01		6.43E+05	3.74E+00
1997	Mauritania	29	4.76E+02	3.35E+08				6.74E+05	
1998	Mauritania	29	4.83E+02	2.38E+08	-0.40	-0.20	1.77E+08	7.01E+05	3.83E+00
1999	Mauritania	29	5.06E+02	3.18E+08			1.73E+08	7.29E+05	5.13E+00
2000	Mauritania	29	4.90E+02	3.45E+08	-0.35	-0.25	2.10E+08	7.60E+05	
2001	Mauritania	29	4.85E+02	4.55E+08			2.38E+08	7.95E+05	3.40E+00
2002	Mauritania	29	4.74E+02	5.59E+08	-0.47	0.23	2.34E+08	8.30E+05	2.99E+00
2003	Mauritania	29	4.88E+02	3.36E+08	-0.51	0.21	3.49E+08	8.64E+05	3.19E+00
2004	Mauritania	2	5.02E+0	2.29E+0	-	-	7.08E+0	8.99E+0	3.23E+0

4		9	2	8	0.68	0.37	8	5	0
2005	Mauritania	29	5.32E+02	2.17E+08	-0.64	-0.36	1.08E+09	9.34E+05	2.96E+00
2006	Mauritania	29	6.16E+02	2.53E+08	-0.70	-0.68	7.61E+08	9.56E+05	3.35E+00
2007	Mauritania	29	6.10E+02	3.59E+08	-0.62	-0.51	7.63E+08	1.00E+06	3.79E+00
2008	Mauritania	29	6.16E+02	4.40E+08	-1.09	-0.72	1.09E+09	1.04E+06	3.77E+00
2009	Mauritania	29	5.93E+02	3.71E+08	-0.79	-0.57	8.99E+08	1.08E+06	3.84E+00
2010	Mauritania	29	6.09E+02	3.74E+08	-0.87	-0.69	1.04E+09	1.12E+06	4.36E+00
1996	Mauritius	30	3.22E+03	2.93E+07	0.86	0.54	8.74E+08	4.93E+05	6.57E+00
1997	Mauritius	30	3.36E+03	6.27E+07			9.69E+08	5.02E+05	6.64E+00
1998	Mauritius	30	3.53E+03	5.83E+07	1.02	0.61	9.31E+08	5.10E+05	
1999	Mauritius	30	3.58E+03	6.33E+07			1.15E+09	5.20E+05	9.55E+00
2000	Mauritius	30	3.86E+03	3.36E+07	0.95	0.55	1.05E+09	5.27E+05	1.08E+01
2001	Mauritius	30	3.92E+03	3.38E+07			1.10E+09	5.36E+05	1.72E+01
2002	Mauritius	30	3.97E+03	3.74E+07	1.01	0.57	1.10E+09	5.37E+05	1.63E+01
2003	Mauritius	30	4.07E+03	-1.87E+07	1.06	0.43	1.21E+09	5.39E+05	1.73E+01
2004	Mauritius	30	4.27E+03	3.95E+07	1.01	0.34	1.24E+09	5.39E+05	1.84E+01
2005	Mauritius	30	4.28E+03	4.10E+07	1.01	0.40	1.22E+09	5.50E+05	2.16E+01
2006	Mauritius	30	4.42E+03	2.23E+07	0.82	0.39	1.45E+09	5.57E+05	2.30E+01
2007	Mauritius	30	4.65E+03	6.99E+07	0.85	0.49	1.53E+09	5.61E+05	2.31E+01
2008	Mauritius	3	4.88E+0	1.02E+0	0.9	0.5	1.55E+0	5.70E+0	2.49E+0

Year	Country								
8		0	3	8	5	9	9	5	1
2009	Mauritius	30	5.00E+03	1.50E+08	0.93	0.66	1.69E+09	5.78E+05	
2010	Mauritius	30	5.18E+03	1.25E+08	0.85	0.67	1.68E+09	5.95E+05	
1996	Mozambique	31	1.94E+02	1.21E+09	-0.84	-0.36	6.23E+08	7.72E+06	4.71E-01
1997	Mozambique	31	2.08E+02	1.39E+09			7.25E+08	7.95E+06	
1998	Mozambique	31	2.25E+02	1.54E+09	-0.84	-0.35	7.20E+08	8.23E+06	
1999	Mozambique	31	2.37E+02	1.21E+09			8.41E+08	8.48E+06	6.10E-01
2000	Mozambique	31	2.33E+02	1.43E+09	-0.77	-0.40	1.32E+09	8.73E+06	6.70E-01
2001	Mozambique	31	2.54E+02	1.51E+09			9.95E+08	8.97E+06	
2002	Mozambique	31	2.69E+02	3.43E+09	-0.65	-0.45	1.33E+09	9.20E+06	
2003	Mozambique	31	2.78E+02	1.36E+09	-0.68	-0.58	1.23E+09	9.44E+06	9.32E-01
2004	Mozambique	31	2.92E+02	1.47E+09	-0.65	-0.59	1.16E+09	9.66E+06	1.18E+00
2005	Mozambique	31	3.12E+02	1.49E+09	-0.61	-0.54	1.27E+09	9.88E+06	1.46E+00
2006	Mozambique	31	3.24E+02	1.83E+09	-0.61	-0.60	1.35E+09	1.01E+07	
2007	Mozambique	31	3.39E+02	1.80E+09	-0.61	-0.50	1.43E+09	1.03E+07	
2008	Mozambique	31	3.54E+02	1.92E+09	-0.61	-0.48	1.59E+09	1.06E+07	
2009	Mozambique	31	3.68E+02	2.02E+09	-0.60	-0.41	2.41E+09	1.08E+07	
2010	Mozambique	31	3.84E+02	1.95E+09	-0.4	-0.3	2.93E+09	1.11E+07	

					8	9			
199 6	Namibia	3 2	2.00E+0 3	2.46E+0 8	0.2 0	0.7 1	6.34E+0 8	5.50E+0 5	
199 7	Namibia	3 2	2.02E+0 3	2.39E+0 8			5.50E+0 8	5.64E+0 5	5.27E+0 0
199 8	Namibia	3 2	2.03E+0 3	2.65E+0 8	0.2 0	0.5 9	6.84E+0 8	5.91E+0 5	6.46E+0 0
199 9	Namibia	3 2	2.04E+0 3	2.59E+0 8			7.12E+0 8	6.16E+0 5	
200 0	Namibia	3 2	2.06E+0 3	2.46E+0 8	0.1 9	0.4 7	6.48E+0 8	6.38E+0 5	
200 1	Namibia	3 2	2.04E+0 3	1.83E+0 8			8.77E+0 8	6.69E+0 5	7.00E+0 0
200 2	Namibia	3 2	2.10E+0 3	2.18E+0 8	0.2 6	- 0.0 4	8.70E+0 8	6.97E+0 5	5.72E+0 0
200 3	Namibia	3 2	2.15E+0 3	1.87E+0 8	0.2 5	0.1 8	8.30E+0 8	7.25E+0 5	6.04E+0 0
200 4	Namibia	3 2	2.37E+0 3	2.03E+0 8	- 0.0 1	0.1 2	8.78E+0 8	7.52E+0 5	
200 5	Namibia	3 2	2.39E+0 3	1.43E+0 8	- 0.0 7	0.1 8	9.10E+0 8	7.82E+0 5	6.67E+0 0
200 6	Namibia	3 2	2.51E+0 3	1.67E+0 8	0.1 3	0.1 7	1.18E+0 9	8.12E+0 5	6.33E+0 0
200 7	Namibia	3 2	2.60E+0 3	2.23E+0 8	0.1 1	0.2 6	1.32E+0 9	8.45E+0 5	
200 8	Namibia	3 2	2.64E+0 3	2.06E+0 8	0.3 6	0.5 7	1.51E+0 9	8.78E+0 5	8.96E+0 0
200 9	Namibia	3 2	2.58E+0 3	3.22E+0 8	0.2 4	0.2 0	1.47E+0 9	9.04E+0 5	
201 0	Namibia	3 2	2.70E+0 3	2.56E+0 8	0.2 2	0.2 7	1.39E+0 9	9.29E+0 5	
199 6	Niger	3 3	1.70E+0 2	3.29E+0 8	- 1.0 0	- 1.0 9	1.86E+0 8	2.95E+0 6	
199 7	Niger	3 3	1.69E+0 2	4.76E+0 8			1.95E+0 8	3.08E+0 6	
199 8	Niger	3 3	1.80E+0 2	4.21E+0 8	- 0.7 4	- 1.0 3	2.29E+0 8	3.23E+0 6	
199 9	Niger	3 3	1.73E+0 2	2.72E+0 8			2.01E+0 8	3.37E+0 6	
200 0	Niger	3 3	1.65E+0 2	3.25E+0 8	- 0.9	- 0.9	2.01E+0 8	3.53E+0 6	

					3	4			
2001	Niger	33	1.70E+02	4.18E+08			2.32E+08	3.68E+06	
2002	Niger	33	1.69E+02	4.54E+08	-0.78	-1.07	3.03E+08	3.82E+06	
2003	Niger	33	1.72E+02	6.26E+08	-0.66	-1.02	3.82E+08	3.98E+06	9.78E-01
2004	Niger	33	1.67E+02	6.46E+08	-0.73	-0.85	4.82E+08	4.13E+06	9.44E-01
2005	Niger	33	1.68E+02	6.04E+08	-0.80	-0.73	6.30E+08	4.28E+06	1.13E+00
2006	Niger	33	1.72E+02	6.11E+08	-0.67	-0.85		4.43E+06	1.15E+00
2007	Niger	33	1.71E+02	5.65E+08	-0.70	-0.78		4.59E+06	1.06E+00
2008	Niger	33	1.80E+02	5.91E+08	-0.77	-0.75		4.76E+06	1.19E+00
2009	Niger	33	1.72E+02	4.67E+08	-0.57	-0.61		4.93E+06	1.42E+00
2010	Niger	33	1.79E+02	7.45E+08	-0.57	-0.67		5.11E+06	1.46E+00

Year	Country	ID							
1996	Nigeria	34	3.66E+02	2.47E+08	-1.26	-1.15		3.57E+07	
1997	Nigeria	34	3.67E+02	2.77E+08				3.66E+07	
1998	Nigeria	34	3.66E+02	2.87E+08	-1.27	-1.07		3.75E+07	
1999	Nigeria	34	3.61E+02	2.10E+08				3.84E+07	6.01E+00
2000	Nigeria	34	3.72E+02	2.46E+08	-1.11	-1.13		3.92E+07	
2001	Nigeria	34	3.74E+02	2.63E+08				4.01E+07	
2002	Nigeria	34	3.71E+02	4.19E+08	-1.48	-1.33		4.10E+07	
2003	Nigeria	34	3.99E+02	3.85E+08	-1.52	-1.32		4.18E+07	9.53E+00
2004	Nigeria	34	4.31E+02	6.54E+08	-1.43	-1.31		4.26E+07	9.73E+00
2005	Nigeria	34	4.43E+02	6.95E+09	-1.36	-1.15		4.37E+07	1.03E+01
2006	Nigeria	34	4.59E+02	1.24E+10	-1.11	-1.06		4.50E+07	
2007	Nigeria	34	4.76E+02	1.95E+09	-1.10	-0.98		4.62E+07	
2008	Nigeria	34	4.92E+02	1.27E+09	-1.10	-0.81		4.76E+07	
2009	Nigeria	34	5.14E+02	1.67E+09	-1.20	-1.00		4.89E+07	

Year	Country	ID							
2010	Nigeria	34	5.40E+02	2.06E+09	-1.21	-1.00		5.03E+07	
1996	Rwanda	35	2.07E+02	6.34E+08	-1.73	-0.93	1.99E+08	2.63E+06	
1997	Rwanda	35	2.18E+02	3.46E+08			2.56E+08	2.89E+06	
1998	Rwanda	35	2.15E+02	5.11E+08	-1.54	-0.78	2.95E+08	3.21E+06	
1999	Rwanda	35	2.12E+02	5.33E+08			3.33E+08	3.53E+06	8.71E-01
2000	Rwanda	35	2.14E+02	4.93E+08	-1.35	-0.65	3.18E+08	3.80E+06	1.29E+00
2001	Rwanda	35	2.23E+02	4.75E+08			3.19E+08	3.99E+06	1.61E+00
2002	Rwanda	35	2.40E+02	5.32E+08	-0.93	-0.46	2.90E+08	4.15E+06	1.88E+00
2003	Rwanda	35	2.41E+02	4.29E+08	-0.88	-0.60	3.31E+08	4.27E+06	2.29E+00
2004	Rwanda	35	2.55E+02	5.66E+08	-0.81	-0.48	3.14E+08	4.37E+06	2.72E+00
2005	Rwanda	35	2.72E+02	6.48E+08	-0.92	-0.74	4.07E+08	4.50E+06	2.87E+00
2006	Rwanda	35	2.90E+02	6.55E+08	-0.66	-0.17	4.98E+08	4.63E+06	3.68E+00
2007	Rwanda	35	2.97E+02	7.28E+08	-0.57	0.01	6.75E+08	4.78E+06	3.72E+00
2008	Rwanda	35	3.21E+02	9.02E+08	-0.47	0.14	1.07E+09	4.92E+06	3.98E+00
2009	Rwanda	35	3.24E+02	9.32E+08	-0.50	0.14	1.13E+09	5.08E+06	4.82E+00
2010	Rwanda	35	3.37E+02	1.03E+09	-0.31	0.48	1.18E+09	5.23E+06	5.49E+00
1996	Sao Tome	36		6.37E+07	0.08	-0.01		4.05E+04	
1997	Sao Tome	36		5.02E+07				4.16E+04	
1998	Sao Tome	36		4.22E+07	-0.34	-0.52		4.27E+04	
1999	Sao Tome	36		4.27E+07				4.39E+04	
2000	Sao Tome	36		5.80E+07	-0.09	-0.08		4.51E+04	
2001	Sao Tome	36		6.53E+07				4.63E+04	
2002	Sao Tome	36		4.16E+07	-0.56	-0.32		4.76E+04	
2003	Sao Tome	36		4.96E+07	-0.54	-0.61		4.89E+04	
2004	Sao Tome	36		3.99E+07	-0.40	-0.60		5.02E+04	
2005	Sao Tome	36		3.77E+07	-0.61	-0.86		5.16E+04	
2006	Sao Tome	36		2.57E+07	-0.57	-0.54		5.29E+04	
2007	Sao Tome	36		5.27E+07	-0.45	-0.48		5.42E+04	
2008	Sao Tome	36		4.66E+07	-0.49	-0.45		5.56E+04	
2009	Sao Tome	36		2.98E+07	-0.73	-0.40		5.70E+04	4.19E+00
2010	Sao	36		4.93E+07	-0.72	-0.44		5.86E+04	4.48E+00

	Tome									

Year	Country	ID							
1996	senegal	37	4.56E+02	7.46E+08	-0.23	-0.22	1.03E+09	3.53E+06	
1997	senegal	37	4.58E+02	6.04E+08			9.11E+08	3.63E+06	
1998	senegal	37	4.73E+02	7.24E+08	-0.03	-0.20	1.17E+09	3.73E+06	
1999	senegal	37	4.91E+02	7.89E+08			1.15E+09	3.83E+06	3.44E+00
2000	senegal	37	4.94E+02	6.76E+08	0.01	-0.11	1.05E+09	3.95E+06	
2001	senegal	37	5.03E+02	6.88E+08			1.11E+09	4.07E+06	
2002	senegal	37	4.93E+02	6.70E+08	0.04	0.31	1.32E+09	4.21E+06	
2003	senegal	37	5.12E+02	5.98E+08	-0.08	-0.14	1.45E+09	4.34E+06	5.26E+00
2004	senegal	37	5.27E+02	1.26E+09	-0.02	-0.06	1.82E+09	4.47E+06	5.31E+00
2005	senegal	37	5.42E+02	8.08E+08	-0.01	-0.03	2.58E+09	4.62E+06	5.84E+00
2006	senegal	37	5.41E+02	9.72E+08	-0.24	-0.43	2.64E+09	4.76E+06	6.00E+00
2007	senegal	37	5.52E+02	8.96E+08	-0.25	-0.56	3.50E+09	4.91E+06	6.65E+00
2008	senegal	37	5.57E+02	1.04E+09	-0.28	-0.53	4.04E+09	5.06E+06	8.30E+00
2009	senegal	37	5.54E+02	1.01E+09	-0.37	-0.54	3.56E+09	5.22E+06	8.34E+00
2010	senegal	37	5.62E+02	9.28E+08	-0.41	-0.70	3.73E+09	5.38E+06	7.92E+00
1996	Seychelles	38	6.24E+03	2.51E+07	0.75	0.90	9.08E+07	1.48E+06	
1997	Seychelles	38	6.91E+03	2.45E+07			9.28E+07	1.48E+06	
1998	Seychelles	38	7.34E+03	3.57E+07	0.47	0.22	1.55E+08	1.49E+06	
1999	Seychelles	38	7.33E+03	1.86E+07			1.81E+08	1.52E+06	
2000	Seychelles	38	7.58E+03	3.55E+07	0.58	0.46	1.55E+08	1.56E+06	
2001	Seychelles	38	7.40E+03	2.02E+07			2.44E+08	1.62E+06	
2002	Seychelles	38	7.27E+03	8.53E+07	0.39	0.31	1.56E+08	1.69E+06	
2003	Seychelles	38	6.91E+03	1.32E+07	0.14	0.33	5.94E+07	1.77E+06	
2004	Seychelles	38	6.74E+03	1.27E+07	0.17	0.20	7.08E+07	1.90E+06	
2005	Seychelles	38	7.21E+03	1.94E+07	0.02	0.14	1.70E+08	1.98E+06	
2006	Seychelles	38	7.72E+03	1.56E+07	0.01	0.09	1.94E+08	2.04E+06	
2007	Seychelles	38	8.42E+03	1.17E+07	0.12	0.19	2.62E+08	2.10E+06	
2008	Seychelles	38	8.15E+03	1.24E+07	0.22	0.25	2.43E+08	2.16E+06	
2009	Seychelles	38	8.16E+03	2.26E+07	0.06	0.32	2.53E+08	2.21E+06	
2010	Seychelles	38	8.79E+03	5.60E+07	0.02	0.29		2.26E+06	
1996	Sierraleone	39	2.07E+02	2.41E+08	-	-	9.43E+07	1.31E+07	

Year	Country								
					1.48	0.77			
1997	Sierraleone	39	1.72E+02	1.69E+08			3.70E+07	1.36E+07	
1998	Sierraleone	39	1.69E+02	1.52E+08	-1.19	-0.87	3.70E+07	1.41E+07	
1999	Sierraleone	39	1.52E+02	1.06E+08			2.33E+07	1.47E+07	
2000	Sierraleone	39	1.53E+02	2.68E+08	-1.47	-0.91	4.37E+07	1.52E+07	1.68E+00
2001	Sierraleone	39	1.75E+02	5.22E+08			5.36E+07	1.57E+07	2.15E+00
2002	Sierraleone	39	2.13E+02	5.53E+08	-1.33	-0.75	9.45E+07	1.61E+07	2.10E+00
2003	Sierraleone	39	2.21E+02	4.23E+08	-1.21	-0.91	1.37E+08	1.65E+07	
2004	Sierraleone	39	2.27E+02	4.31E+08	-1.17	-0.88	1.15E+08	1.69E+07	
2005	Sierraleone	39	2.34E+02	3.79E+08	-1.18	-1.09	2.10E+08	1.72E+07	
2006	Sierraleone	39	2.43E+02	4.17E+08	-1.04	-1.05	2.17E+08	1.76E+07	
2007	Sierraleone	39	2.51E+02	5.52E+08	-1.03	-0.90	2.19E+08	1.80E+07	
2008	Sierraleone	39	2.59E+02	3.61E+08	-0.96	-0.94	2.88E+08	1.87E+07	
2009	Sierraleone	39	2.61E+02	4.47E+08	-0.92	-0.93	2.86E+08	1.84E+07	
2010	Sierraleone	39	2.68E+02	4.67E+08	-0.95	-0.76	3.01E+08	1.82E+07	

Year	Country								
1996	South Africa	40	3.02E+03	4.90E+08	-0.01	0.76	1.89E+10		
1997	South Africa	40	3.03E+03	7.08E+08			2.00E+10		
1998	South Africa	40	2.97E+03	7.42E+08	0.16	0.65	2.10E+10		
1999	South Africa	40	2.97E+03	7.84E+08			1.94E+10		
2000	South Africa	40	3.02E+03	7.55E+08	0.10	0.61	2.01E+10		
2001	South Africa	40	3.04E+03	6.75E+08			2.08E+10		
2002	South Africa	40	3.11E+03	7.71E+08	0.05	0.39	2.17E+10		
2003	South Africa	40	3.16E+03	8.32E+08	0.04	0.34	2.39E+10		
2004	South Africa	40	3.26E+03	7.27E+08	0.09	0.48	2.70E+10		

Year	Country	ID							
2005	South Africa	40	3.40E+03	7.82E+08	0.08	0.58	2.99E+10		
2006	South Africa	40	3.55E+03	7.99E+08	0.23	0.43	3.35E+10		
2007	South Africa	40	3.70E+03	8.29E+08	0.06	0.21	3.83E+10		
2008	South Africa	40	3.80E+03	1.09E+09	0.02	0.16	4.28E+10		
2009	South Africa	40	3.70E+03	1.08E+09	0.09	0.11	4.38E+10		
2010	South Africa	40	3.75E+03	1.03E+09	0.10	0.09	4.11E+10		
1996	Sudan	41	3.10E+02		-1.63	-1.28	7.54E+08	7.45E+06	4.07E+00
1997	Sudan	41	3.34E+02				1.10E+09	7.66E+06	
1998	Sudan	41	3.40E+02		-1.63	-1.02	1.31E+09	7.88E+06	
1999	Sudan	41	3.42E+02				1.27E+09	8.10E+06	6.15E+00
2000	Sudan	41	3.62E+02		-1.50	-0.80	1.49E+09	8.32E+06	6.09E+00
2001	Sudan	41	3.75E+02				1.53E+09	8.56E+06	
2002	Sudan	41	3.86E+02		-1.28	-1.02	1.78E+09	8.80E+06	
2003	Sudan	41	4.04E+02		-1.58	-1.24	1.97E+09	9.03E+06	
2004	Sudan	41	4.02E+02		-1.48	-1.28	2.37E+09	9.30E+06	
2005	Sudan	41	4.18E+02		-1.60	-1.45	2.64E+09	9.56E+06	
2006	Sudan	41	4.54E+02		-1.31	-1.17	3.06E+09	9.81E+06	
2007	Sudan	41	4.87E+02		-1.38	-1.34	3.29E+09	1.01E+07	
2008	Sudan	41	5.07E+02		-1.41	-1.48	3.48E+09	1.03E+07	
2009	Sudan	41	5.14E+02		-1.26	-1.21	3.34E+09	1.05E+07	
2010	Sudan	41	5.24E+02		-1.32	-1.33		1.08E+07	
1996	Swaziland	42	1.40E+03	4.05E+07	-0.53	-0.01	4.56E+08	2.94E+05	6.19E+00
1997	Swaziland	42	1.41E+03	3.83E+07			4.65E+08	3.04E+05	
1998	Swaziland	42	1.44E+03	4.72E+07	-0.59	-0.02	4.98E+08	3.08E+05	
1999	Swaziland	42	1.48E+03	4.00E+07			3.50E+08	3.11E+05	4.79E+00

2000	Swaziland	42	1.51E+03	1.94E+07	-0.68	-0.25	2.76E+08	3.15E+05	4.46E+00
2001	Swaziland	42	1.52E+03	4.77E+07			3.82E+08	3.18E+05	4.28E+00
2002	Swaziland	42	1.55E+03	3.39E+07	-0.67	-0.32	3.19E+08	3.22E+05	4.53E+00
2003	Swaziland	42	1.58E+03	5.18E+07	-0.75	-0.55	3.45E+08	3.25E+05	4.55E+00
2004	Swaziland	42	1.63E+03	2.92E+07	-0.83	-0.58	2.75E+08	3.29E+05	5.44E+00
2005	Swaziland	42	1.66E+03	5.68E+07	-0.87	-0.48	2.72E+08	3.33E+05	4.73E+00
2006	Swaziland	42	1.72E+03	4.07E+07	-0.68	-0.29	2.67E+08	3.37E+05	4.43E+00
2007	Swaziland	42	1.77E+03	5.35E+07	-0.77	-0.24	2.57E+08	3.42E+05	
2008	Swaziland	42	1.79E+03	6.86E+07	-0.63	-0.18	2.38E+08	3.51E+05	
2009	Swaziland	42	1.80E+03	5.63E+07	-0.61	-0.19	2.16E+08	3.60E+05	
2010	Swaziland	42	1.81E+03	9.15E+07	-0.49	-0.17	2.25E+08	3.68E+05	

1996	Tanzania	43	2.88E+02	1.15E+09	-0.25	-1.03	1.29E+09	1.50E+07	5.51E-01
1997	Tanzania	43	2.91E+02	1.36E+09			1.30E+09	1.54E+07	6.38E-01
1998	Tanzania	43	2.94E+02	1.43E+09	-0.29	-0.97	1.48E+09	1.59E+07	5.52E-01
1999	Tanzania	43	3.01E+02	1.45E+09			1.57E+09	1.63E+07	6.35E-01
2000	Tanzania	43	3.08E+02	1.56E+09	-0.39	-0.95	1.67E+09	1.67E+07	
2001	Tanzania	43	3.18E+02	1.92E+09			1.87E+09	1.72E+07	6.93E-01
2002	Tanzania	43	3.32E+02	1.93E+09	-0.39	-0.94	2.01E+09	1.77E+07	8.14E-01
2003	Tanzania	43	3.46E+02	2.20E+09	-0.29	-0.78	2.30E+09	1.82E+07	9.28E-01
2004	Tanzania	43	3.63E+02	2.06E+09	-0.36	-0.58	2.53E+09	1.87E+07	1.25E+00
2005	Tanzania	43	3.80E+02	1.69E+09	-0.26	-0.65	3.01E+09	1.93E+07	1.46E+00
2006	Tanzania	43	3.94E+02	2.07E+09	-0.44	-0.22	3.49E+09	1.98E+07	
2007	Tanzania	43	4.11E+02	3.04E+09	-0.36	-0.34	4.00E+09	2.04E+07	
2008	Tanzania	43	4.29E+02	2.25E+09	-0.35	-0.42	4.31E+09	2.09E+07	

Year	Country	ID							
2009	Tanzania	43	4.42E+02	2.97E+09	-0.51	-0.44	4.74E+09	2.15E+07	
2010	Tanzania	43	4.59E+02	2.96E+09	-0.52	-0.52	5.00E+09	2.21E+07	2.11E+00
1996	Togo	44	2.71E+02	1.93E+08	-0.76	-0.76	1.55E+08	1.82E+06	2.78E+00
1997	Togo	44	3.00E+02	1.71E+08			1.45E+08	1.89E+06	
1998	Togo	44	2.83E+02	1.82E+08	-0.76	-0.63	1.87E+08	1.98E+06	3.14E+00
1999	Togo	44	2.80E+02	9.99E+07			1.80E+08	2.07E+06	
2000	Togo	44	2.70E+02	1.08E+08	-0.71	-0.66	1.87E+08	2.15E+06	
2001	Togo	44	2.58E+02	7.38E+07			1.90E+08	2.23E+06	
2002	Togo	44	2.50E+02	7.82E+07	-0.79	-0.77	2.03E+08	2.31E+06	
2003	Togo	44	2.56E+02	6.49E+07	-0.98	-0.90	2.15E+08	2.38E+06	
2004	Togo	44	2.56E+02	7.77E+07	-1.13	-0.93	2.13E+08	2.46E+06	
2005	Togo	44	2.53E+02	9.54E+07	-1.09	-0.78	2.34E+08	2.54E+06	
2006	Togo	44	2.57E+02	8.96E+07	-0.98	-1.07	2.57E+08	2.62E+06	5.20E+00
2007	Togo	44	2.58E+02	1.24E+08	-0.90	-0.94	2.36E+08	2.69E+06	5.88E+00
2008	Togo	44	2.58E+02	3.13E+08	-0.78	-0.93	2.58E+08	2.77E+06	
2009	Togo	44	2.61E+02	5.00E+08	-0.89	-1.04	3.16E+08	2.86E+06	
2010	Togo	44	2.65E+02	4.19E+08	-0.92	-0.98	3.89E+08	2.94E+06	
1996	Uganda	45	2.35E+02	8.91E+08	-0.64	-0.60	1.12E+09	9.04E+06	1.80E+00
1997	Uganda	45	2.39E+02	1.16E+09			1.10E+09	9.30E+06	
1998	Uganda	45	2.44E+02	9.48E+08	-0.64	-0.92	1.12E+09	9.57E+06	
1999	Uganda	45	2.56E+02	8.64E+08			1.29E+09	9.84E+06	1.93E+00
2000	Uganda	45	2.56E+02	1.29E+09	-0.79	-0.85	1.19E+09	1.01E+07	2.57E+00
2001	Uganda	45	2.61E+02	1.28E+09			1.24E+09	1.04E+07	2.78E+00
2002	Uganda	45	2.75E+02	1.06E+09	-0.65	-0.94	1.32E+09	1.08E+07	3.43E+00
2003	Uganda	45	2.83E+02	1.27E+09	-0.54	-0.80	1.49E+09	1.10E+07	3.66E+00
2004	Uganda	45	2.93E+02	1.41E+09	-	-	1.66E+09	1.12E+07	3.54E+00

Year	Country	ID							
					0.64	0.75			
2005	Uganda	45	3.01E+02	1.35E+09	-0.56	-0.85	1.87E+09	1.15E+07	
2006	Uganda	45	3.23E+02	1.72E+09	-0.35	-0.75	2.25E+09	1.18E+07	3.45E+00
2007	Uganda	45	3.39E+02	1.75E+09	-0.40	-0.80	2.61E+09	1.22E+07	
2008	Uganda	45	3.57E+02	1.59E+09	-0.39	-0.82	2.77E+09	1.26E+07	3.77E+00
2009	Uganda	45	3.71E+02	1.80E+09	-0.43	-0.91	3.04E+09	1.30E+07	4.19E+00
2010	Uganda	45	3.80E+02	1.72E+09	-0.41	-0.90	2.85E+09	1.34E+07	
1996	Zambia	46	3.29E+02	7.99E+08	-0.65	-1.03	4.61E+08	4.02E+06	
1997	Zambia	46	3.31E+02	8.68E+08			5.81E+08	4.13E+06	
1998	Zambia	46	3.16E+02	5.14E+08	-0.53	-0.88	7.54E+08	4.26E+06	2.36E+00
1999	Zambia	46	3.14E+02	8.88E+08			9.16E+08	4.37E+06	2.33E+00
2000	Zambia	46	3.17E+02	1.20E+09	-0.54	-0.85	5.18E+08	4.48E+06	2.41E+00
2001	Zambia	46	3.25E+02	8.84E+08			5.92E+08	4.57E+06	
2002	Zambia	46	3.28E+02	1.21E+09	-0.40	-0.94	6.26E+08	4.67E+06	
2003	Zambia	46	3.37E+02	9.92E+08	-0.47	-0.76	6.64E+08	4.75E+06	
2004	Zambia	46	3.47E+02	1.29E+09	-0.52	-0.68	6.39E+08	4.85E+06	
2005	Zambia	46	3.57E+02	1.33E+09	-0.58	-0.79	6.78E+08	4.95E+06	
2006	Zambia	46	3.70E+02	1.62E+09	-0.59	-0.73	7.50E+08	5.06E+06	
2007	Zambia	46	3.83E+02	1.04E+09	-0.57	-0.57	8.15E+08	5.18E+06	
2008	Zambia	46	3.94E+02	1.08E+09	-0.44	-0.47	3.25E+09	5.31E+06	
2009	Zambia	46	4.08E+02	1.27E+09	-0.46	-0.54	2.84E+09	5.44E+06	
2010	Zambia	46	4.32E+02	9.14E+08	-0.47	-0.58	3.63E+09	5.51E+06	
1996	Zimbabwe	47	5.54E+02	4.89E+08	-0.82	-0.25	1.54E+09	4.94E+06	3.91E+00
1997	Zimbabwe	47	5.60E+02	4.75E+08			1.54E+09	5.07E+06	
1998	Zimbabwe	47	5.67E+02	3.81E+08	-	-	1.32E+09	5.11E+06	

					0.71	0.65			
1999	Zimbabwe	47	5.56E+02	3.39E+08			1.75E+08	5.14E+06	
2000	Zimbabwe	47	5.35E+02	2.57E+08	-1.33	-0.95	7.89E+08	5.47E+06	
2001	Zimbabwe	47	5.40E+02	2.54E+08			8.21E+08	5.78E+06	
2002	Zimbabwe	47	4.90E+02	2.86E+08	-1.59	-1.21	6.45E+08	6.06E+06	
2003	Zimbabwe	47	4.07E+02	2.33E+08	-1.68	-1.25	7.91E+08	6.30E+06	
2004	Zimbabwe	47	3.84E+02	2.14E+08	-1.76	-1.31	2.97E+08	6.51E+06	
2005	Zimbabwe	47	3.63E+02	4.22E+08	-1.77	-1.28	1.15E+08	6.52E+06	
2006	Zimbabwe	47	3.51E+02	2.99E+08	-1.70	-1.33	1.21E+08	6.50E+06	
2007	Zimbabwe	47	3.40E+02	4.76E+08	-1.76	-1.36	2.69E+08	6.49E+06	
2008	Zimbabwe	47	2.80E+02	5.99E+08	-1.75	-1.30	1.45E+08	6.49E+06	
2009	Zimbabwe	47	2.97E+02	7.51E+08	-1.82	-1.32	1.42E+08	6.52E+06	
2010	Zimbabwe	47	3.21E+02	7.32E+08	-1.79	-1.30	4.22E+08	6.62E+06	6.19E+00

Table 1: Descriptive statistics of variables

Variables	Obs	Mean	Std. Dev	Min	Max
LRGDPK	689	6.201314	1.076913	4.062166	9.088173
LGFCF	623	20.14106	1.513775	15.78959	24.5029
LLAB	675	14.69456	1.508442	10.60906	17.73351
LAID	687	19.51093	1.259951	16.2751	23.24096
ROL	537	-0.6938175	0.6407454	-2.23	1.06
COC	563	-0.5925222	0.5890245	-2.06	1.25
LHUKP	357	0.982328	0.9031915	-1.518684	3.214868

Table 2: Ordinary pooled regression test

Source	SS	df	MS
Model	175.505807	6	29.2509678
Residual	31.1952297	225	.138645465
Total	206.701037	231	.894809682

Number of obs =   232   R-squared   = 0.8491

F(6, 225) = 210.98   Adj R-squared = 0.8451

Prob > F   = 0.0000   Root MSE   = .37235

LRGDPK	Coeff.	Std. err.	T	P>|t|	[95% Conf. Interval]	
LGfcf	.4903518	.0313799	15.63	0.000	.4285158	.5521879
LLab	-.3869536	.0391313	-9.89	0.000	-.4640643	-.3098429
Laid	-.2972953	.0403554	-7.37	0.000	-.3768181	-.2177725
Rol	.1088395	.0748134	1.45	0.147	-.038585	.256264
Coc	.0632082	.0788827	0.80	0.424	-.092235	.2186515
LHukp	.1698063	.0367778	4.62	0.000	.0973333	.2422793
_cons	7.665361	.5322897	14.40	0.000	6.616451	8.714272

Table 3: Pair wise correlation test

	Gfcf	Lab	Aid	Rol	Coc	Hukp
Gfcf	1.0000					
Lab	0.3611	1.0000				
Aid	0.1744	0.6055	1.0000			
Rol	0.1648	-0.2271	-0.0885	1.0000		
Coc	0.1837	-0.2665	-0.1140	0.8609	1.0000	
Hukp	0.1905	-0.1716	-0.1425	0.4351	0.3781	1.0000

Table 4: Fixed effect regression test

Fixed-effects (within) regression   Number of obs   =   232

Group variable: id   Number of groups   =   40

R-sq: within = 0.5758   Obs per group: min =   1

        between = 0.0006   avg =   5.8

        overall = 0.0004   max =   12

 F(6,186)   =   42.07

corr(u_i, Xb) = -0.3013   Prob > F   =   0.0000

	Coeff.	Std. err.	T	P>|t|	[95% Conf. Interval]	
Lgfcf	.0461522	.0206027	2.24	0.026	.0055071	.0867972
Llab	.2119504	.1132885	1.87	0.063	-.0115452	.435446
Laid	-.0467392	.0177235	-2.64	0.009	-.0817042	-.0117743
Rol	.1207702	.0458092	2.64	0.009	.0303977	.2111426
Coc	.0281721	.0334768	0.84	0.401	-.037871	.0942152
Lhukp	.1581069	.0242004	6.53	0.000	.1103643	.2058496
_cons	2.81936	1.423865	1.98	0.049	.0103595	5.62836
sigma_u	.97836147					
sigma_e	.08500866					
Rho	.99250691					

Table 5: Random Effect Test

Random-effects GLS regression   Number of obs   =   232

Group variable: id   Number of groups   =   40

R-sq: within = 0.5305   Obs per group: min =   1

between = 0.7007   avg =   5.8

overall = 0.7544   max =   12

Random effects u_i ~ Gaussian   Wald chi2(6)   =   285.11

corr(u_i, X)   = 0 (assumed)   Prob > chi2   =   0.0000

	Coeff.	Std. err.	T	P>|t|	[95% Conf. Interval]	
Lgfcf	0.1169852	.0196725	5.95	0.000	.0784279	.1555425
Llab	-.2950377	0.0534192	-5.52	0.000	-.3997374	-.1903381
Laid	-.0530724	.0197224	-2.69	0.007	-.0917276	-.0144172
Rol	0.1410111	.049217	2.87	0.004	.0445476	.2374747
Coc	-.0126988	.0361178	-0.35	0.725	-.0834883	.0580907
Lhukp	0.2278372	.0205366	11.09	0.000	.1875863	.2680881
_cons	8.957337	0.6743939	13.28	0.000	7.635549	10.27913
sigma_u	.39569066					
sigma_e	.08500866					
Rho	.95588169					

Table 6: Hausman Test

	Fixed(b)	Randon(B)	Difference(b-B)	Sqrt [diag(v_b-v_B] S.E
Lgfcf	0.0461522	0.1169852	-0.0708331	0.006121
Llab	0.2119504	-0.2950377	0.5069881	0.0999034
Laid	-0.0467392	-0.0530724	0.0063331	.

Rol	0.1207702	0.1410111	-0.020241	.
Coc	0.0281721	-0.126988	0.0408709	.
Lhukp	0.1581069	0.2278372	-0.0697302	0.0128028

chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 8.45   Prob>chi2 =   0.2070

Table 7: System Generalized Method of Moment Test

Number of obs= 215   Number of groups=40

Group variable: id Number of groups=40   obs per group: min=1

Time variable: years   avg=5.375

Number of instruments= 82   Max=11

Wald chi2(7)   = 1.81e+06   Prob > chi2   =   0.0000

Table 7: System dynamic panel data Test.

Lrgdpk	Coef.	Std. Err.	Z	P>|z|	[95% Conf. Interval]	
Lrgdpk						
L1	1.025194	0.009429	108.73	0.000	1.006713	1.043674
Lgfcf	0.0165695	0.0006299	26.30	0.000	0.0153348	0.0178041
Llab	0.0009856	0.0075836	0.13	0.897	-0.013878	0.0158492
Laid	-0.005013	0.0028154	-1.78	0.075	-0.0105311	0.000505
Rol	0.0728883	0.0024538	29.70	0.000	0.0680789	0.0776977
Coc	-0.0443613	0.0043732	-10.14	0.000	-0.0529326	-0.03579
Lhukp	-0.010289	0.0044708	-2.30	0.021	-0.0190516	-0.0015265
_cons	-0.3462577	0.1468183	-2.36	0.018	-0.6340164	-0.0584991