RELATIVE CONTRIBUTION OF BILATERAL AND MULTILATERAL AID TO ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM WEST AFRICA

By

SUSO, Filly

THESIS

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KDI School of Public Policy and Management
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For the Degree of

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Committee in charge:

Professor Shun WANG, Supervisor

Professor Baran HAN

Professor Booyuel KIM

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Abstract

By

Filly Suso

This paper assesses and compares the impact of bilateral and multilateral aid on economic growth in West Africa. Based on analysis of panel data on the sixteen countries in the region, the paper found that Official Development Assistance was positively correlated with GDP per capita. Our findings show that bilateral aid was more effective at 0.1% significance level in the short run – in the very year of disbursement. Holding other factor constant, one percentage point increase in bilateral aid resulted in 14.6% increase in GDP per capita larger than 6.8% increase from a similar increase in multilateral disbursement. This result of a more positive impact of bilateral aid was consistent using different model specifications including simple OLS and panel data fixed and random effects. However, the impact of multilateral aid increased significantly when we lagged the aid variables (bilateral, multilateral and total aid) by four years. These findings suggest that bilateral aid is more of an early-impact aid than multilateral whose effect only increased after few years of disbursement. Thus, we submit that the purpose of aid giving in West Africa should determine the type so that short-term rapid response interventions are supported with bilateral while long-term programs with multilateral.

Key words: aid, bilateral, multilateral, economic growth, GDP per capita, West Africa
Dedication

To three people: my dearest grandma, Aja Kemneh Jobarteh, for her overwhelming love; my dad, Faye Suso, for his dedication to the course of my education; and my beloved mother, Bintou Saho for her patience, love and concern for me despite the vast physical distance that separates us.
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Chapter 1
Introduction

Background

The poverty situation in the world is dire with more than one billion people still living below the poverty line. All countries, especially developing ones, therefore continue to strive to increase incomes and welfare of their citizens. In this pursuit, many depend on taxes, which are generated from incomes. Owing to low incomes in developing countries especially those in sub-Saharan Africa, domestic resources for welfare-improving projects are usually very limited. As a result, poverty remains widespread and economic growth continues to be slow in these regions. This has widened the gap between developing and developed countries where per capita incomes are high. According to the neo-classical model, developing countries generally lack finances to accumulate capital and develop relevant technology through research and development. Therefore, it emphasizes the importance of technology and capital transfer in order to raise living standards.

Based on this model, increasing foreign aid has been flowing from developed countries to developing regions to raise investment levels in physical infrastructure and human capital so as to achieve economic growth and poverty reduction. As a result, aid has become a significant portion of the GNI of many developing countries especially those in West Africa. Data obtained from Word Bank website show that in 2014 alone, it formed more than 40 per cent of government finance in Liberia, 18.8 per cent in Sierra Leone, 12.9 in Cape Verde, 12.1 percent in The Gambia and nearly 10 per cent in Burkina Faso, Guinea,
Guinea Bissau and Mali respectively. The effect of these increasing financial flows has attracted the attention of many researchers. While some found aid to be yielding positive effects on growth, many others contend that the system of foreign aid in the past decades has proven counterproductive and failed to achieve development objectives (Bauer cited in Bauer, Siwatibauand and Kasper, 1991). It is against this background that this paper undertakes to analyze the relationship between aid and economic growth by disaggregating aid into its two types. Such an approach is intended to identify any possible confounding effect of any one type on the other which could affect the real impact of total aid.

**Purpose**

This paper aims to assess the impact of aid on growth. In particular, it evaluates and compares the relative contribution of the two different types of official development assistance (ODA) – bilateral and multilateral – in stimulating economic growth in West Africa. Based on the results of the study, the paper will suggest some policy recommendations going forward so as to achieve value for aid money in the sub-region.

**Statement of problem**

In the past five decades, there has been significant inflow of foreign aid from the developed world to developing countries mainly to promote economic growth and human welfare in the latter. During the last decade and half particularly, donors have increased

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1 The terms foreign aid, aid and Official Development Assistance (ODA) are used interchangeably to mean the same in this paper
aid commitment and disbursements purposely to reduce fiscal deficits so as to increase the chances of attaining the Millennium Development Goals (MDGs). This is evident in the trends in volumes and terms of ODA over the years. According to International Development Association (2007), funding for ODA has grown steadily over the last decade with disbursements reaching US$105 billion in 2005 and terms becoming increasingly concessional with 90 per cent of bilateral ODA being in the form of grants.

However, the effectiveness of these inflows in stimulating growth remains contested among scholars and researchers. Doucouliagos and Paldam (2009) for instance, provide evidence that ODA has not been effective even after 40 years of its existence, but Papanek (1973, as cited in Mercieca, 2010), did found some strong evidence of a positive association between aid flows and growth rates in recipient countries. Similarly, Burnside and Dollar (2000) and Driffield and Jones (2013) argue that aid does become effective in the context of good fiscal, monetary and trade policies and institutions. Due to this disagreement, donors remain unclear about the real effect of aid. This paper attempts to address this by running a regression in which it separates aid into its two components – bilateral and multilateral.

As figure 1 below illustrates, aid took an increasing trend from the beginning of the millennium era. Much of this increase has been due to debt relief under the Highly Indebted Poor Countries (HIPC) initiative, which resulted into massive cancellation of Nigeria’s debt stock causing total ODA inflows into the region to rise. This is particularly true for the bilateral component which shoot up to US$14,062.65 million in 2006 from
US$8,895.81 million in 2005 while multilateral aid slightly increased to US$3,575.74 million from US$2,814.36 million in the same period. The graph also shows that bilateral aid had always been the most important type of aid to West Africa until 2014 when multilateral flows surpassed it slightly.

![Graph showing trend of bilateral and multilateral aid flows to West Africa (1987 - 2014)](image)

Figure 1: Trend of bilateral and multilateral aid flows to West Africa (1987 - 2014)

Demonstrating government consumption as a function of several factors, Burnside and Dollar (1997) found that such increasing country-to-country aid is typically used for government consumption while multilateral aid for growth-promoting investment. Going by this finding and the trend in their flows, some researchers have pointed to the relative large size of bilateral aid as one factor that might have been responsible for the low effectiveness of aid in West Africa. Until today, poverty remains concentrated. Growth has been slow (Burnside & Dollar, 2000) and the past decades of foreign aid has failed to yield economic development and poverty reduction states Bandow and Vasquez (1994). Therefore, donors are interested in knowing which of the two aid channels is more effective in promoting economic growth.

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2 Based on data from OECD-DAC Statistics
Similarly, since different types of foreign aid are given on different motives, terms and conditions, it is rational to believe that these differences will affect outcomes differently. Yet, only few studies including Ram (2003) and Rajan and Subramanian (2008) have disaggregated the aid variable into its two different components of bilateral and multilateral. A great number of other studies have used an aid variable that combined the two elements somehow implying equality in their parameters. Since the two elements have never been equal in volumes, it is logical to think that such studies have suffered from some model misspecifications. Similar in methodology to other studies, even the findings of Ram (2003) and Rajan and Subramanian (2008) were based on large samples of somewhat heterogeneous developing countries which reduces their appropriateness to explain the aid-growth nexus in specific sub-regions and countries.

Above all, an assessment like this one is extremely timely given the colossal resource requirement for the implementation of the recently adopted Sustainable Development Goals (SDGs). This massive resource need calls for improvement in current utilization of resources including foreign aid. This study seeks to contribute to this by identifying the most effective aid channel and policy changes required to make increasing, but limited, aid more effective.

**Importance of the study**

Although there is a myriad of studies on the relationship between aid and economic growth, there exist no consensus among the results of various empirical studies. Besides,
only few studies have been found to have disaggregated the aid variable into its two components of bilateral and multilateral which questions the validity of the specifications of the many other earlier studies that have also been based on large, and somewhat heterogeneous, samples. It is the aim to contribute to resolving these controversies and to address the associated methodological weaknesses of previous studies that motivated this study. Such a study is significant in many respects.

First, it will identify which of the two modalities to promote and the kind of policy changes that are required to enhance aid effectiveness. It will also determine whether the slow economic growth rate in the sub-region, despite increasing aid inflows, is due to the type of aid. Furthermore, better utilization of aid has implications for Sustainable Development Goals (SDGs) as the resource requirement for the implementation of this ambitious global development agenda is colossal.

The study will be the first of its kind in the sub-region. As such, it will provide policy makers with much-needed evidence on which aid type to promote going forward. This is essential, as ODA constitute a significant portion of the GNI of many West Africa countries. Moreover, given the dwindling nature of resources and the increasing concern for aid success as emphasized in the Paris Declaration Agenda on Aid Effectiveness, it is critical that aid effectiveness be proven through empirical studies like this one to shape the future of aid and aid policies. In this way, the findings may counter against resource waste and probable donor fatigue especially where a positive relationship is established.
Research questions

To assess the impact of bilateral and multilateral aid on economic growth in West Africa, this study will investigate the following research questions:

1. Is there a relationship between official development assistance and GDP per capita in West Africa?
2. What is the impact of bilateral aid on GDP per capita in West Africa?
3. What is the impact of multilateral aid on GDP per capita in West Africa?
4. Is there any confounding effect of combining the two types in a single variable (aid)?
5. What policy measures need to be adopted to make ODA more effective in raising GDP per capita in West Africa?

Answer to the research questions/hypothesis

To the extent that inadequate resources challenge the ability of poor countries to embark on growth-promoting investments, our assumption is that foreign aid will relax these constraints. This paper thus expects a positive relationship between ODA and GDP per capita in West Africa. It also expects the coefficient of multilateral aid to be larger than that of bilateral inflows. This is because bilateral aid is found to be significant and positively correlated with donor’s strategic interest and government consumption while multilateral disbursements mostly favor better policy and institutional environments and usually used for growth-promoting investment which makes its correlation with consumption insignificant as reported by Burnside and Dollar (1997).

3 In this paper, GDP per capita growth will be used as the measure of economic growth. The two terms will be used interchangeably.
Structure of the paper

The rest of the paper is organized as follows: the next section reviews existing theoretical and empirical literature relevant to the topic under investigation. In section three, the study methodology and its rationale are presented. This section also describes the regression technique, data and variables that are included in the models. The fourth section analyzes the data and discusses the findings. The final part draws some conclusions from the review of the evidences presented in the preceding parts before stating the policy implications.
Chapter 2
Literature Review

Generally, in many developing countries, governments rely on taxes, which are generated from income that are usually low. Likewise, well-regulated institutions and sound policies that should attract foreign direct investments in these countries are almost nonexistent. As a result, resources to finance domestic development projects are mostly low. The need for resources from outside in the form of aid thus becomes imperative. This section surveys the literature on this source of development finance.

The literature on the relationship between aid and economic growth is wide and composed of divergent views and approaches emphasizing wide variance in conclusions. As the conceptual foundation of aid evolved overtime, the conclusions on whether or not aid is effective in promoting economic growth and human welfare remains controversial. What follows is a discussion of relevant theoretical and empirical literature on aid and economic growth.

Theoretical foundation

Early theoretical background

For better comprehension, it is crucial to review how ideas about aid and its role have evolved overtime, particularly before the Second World War, which laid the foundation of later theories on aid and development. This period was somewhat characterized by relative scarcity of capital which was believed to have been the primary cause of economic stagnation and poverty. Development discourse, accordingly, came to focus on
what Mercieca (2010) refer to as “capital bottleneck theories” and how these could be alleviated. Mercieca maintain that external finance was seen as a necessary condition to enable developing countries access much needed and scarce capital goods to promote growth and poverty reduction.

According to Meier and Stglitz (2000), the idea of transferring aid to poor countries to promote growth draws its roots from the work of John Maynard Keynes in the 1930s who argued that governments could stimulate development by investment. It was his idea that would be developed later by subsequent development economists and referred to as the “two gap theory” which refers to the constraint on savings and imports that shortage of finance particularly foreign exchange causes in a country. Thorbecke (2000) state that the role of foreign aid, in the light of the two-gap models was considered important in removing either a savings deficiency through an increased flow of foreign savings or a deficit in the current account of the balance-of-payments by providing the necessary foreign exchange. It was against this backdrop that former war-torn European countries would benefit from the Marshal Plan between 1948 and 1951 which led to massive transfer of capital and technical assistance from the United States to these countries for economic reconstruction through investment in infrastructure.

Development economists, influenced by the success of European countries in reconstructing their economies following the end of the Second World War, came to be concerned with how foreign aid could be used to promote growth and human welfare in other parts of the world including sub-Saharan Africa which encompasses the region of
focus of this study – West Africa. Similarly, early growth models stress the role of capital and capital formation in development (Papanek, 1972, as cited in Mercieca, 2010). Mercieca further argue that external finance was required for the production of capital goods such as machinery, industrial plants and so forth, which would increase the production potential of developing countries in the future.

In the same way, poor countries in Africa, Asia and Latin America that had long suffered chronic financial shortages, low savings and low investments, were deemed to need external funding to relax these growth constraints and pave the way for higher incomes, savings, investments and eventually spur economic growth.

**Later theories**

Building on the ideas of Keynes, subsequent development economists argue that growth in such developing regions as West Africa could be stimulated by injecting cash from overseas (Mercieca, 2010). The logic of this theory is simple: investments determine savings and savings are determined by per capita incomes. Therefore, as Mercieca (2010) puts it “since poor countries have low incomes, low savings and low investments which made them to be trapped in vicious circle of poverty,…increased finance by foreign aid would dissolve the vicious circle and connect them to the virtuous circle of productivity and growth” (p. 3). Based on this, it was anticipated that donors would estimate this domestic financing gap which is the difference between domestic savings and the level of investment required to spur economic growth and thus fill it with development assistance (Meier & Stiglitz, 2000).
The most well-known of the gap theory, according to Divan (1968), is the Harrod-Domar model of growth which was developed in the 1950s. This model emphasizes the critical role of savings and investment in initiating and promoting economic growth. Todaro and Smith (2010) noted that the model is “a functional economic relationship in which the growth rates of gross domestic product (g) depends directly on the national net savings rate (s) and inversely on the national capital output ratio (c)” (p. 111). Since economic growth is constrained by low savings to finance investment, ODA would serve as a means of increasing available resources to boost domestic savings and stimulate investment and growth eventually.

In the same vein, Divan (1968) states that Chenery had written about the two gap theory focusing on the role of foreign aid in the development process. For Chenery, developing countries suffer from foreign exchange gap since they generate very little from export earnings to import capital goods for investment. Therefore, it was obvious that help in the form of ODA was necessary to fill this gap. Moreover, other scholars (Bacha, 1990; Taylor, 1990 as cited in Mercieca, 2010) have recognized the two gap theory. They (Bacha & Taylor) point to weak revenue and revenue collection capacities of governments of developing countries as the cause of their inability to raise investments levels. Like previous scholars, they also argue for more foreign aid to address these challenges.

From the above, it is clear that development theory, from the days before the Second World War, has emphasized the important role of aid in development process,
particularly, in relaxing savings, investment and revenue constraints to stimulate economic growth. This, coupled with the need to meet the Millennium Development Goals and the recently adopted Sustainable Development Goals in the twenty-first century, explains the reason for the renewed commitment on the part of donors to increase aid commitment and disbursements to the poorest regions of the world. However, whether this increasing aid actually meets its objective of promoting growth remains debatable. The empirical discussion on this subject forms the core of the next sub-section.

**Empirical studies on aid effectiveness**

According to the Organization for Economic Co-operation and Development (OECD), official development assistance are flows from donor governments and their agencies that are considered developmental in their intent with a grant element of at least 25 per cent. These assistance are usually provided by member countries of the OECD-Development Assistance Committee (OECD-DAC) (OECD, 2008), and other bilateral and multilateral organization to promote economic growth and human welfare in recipient countries. However, a review of empirical studies reveals that a huge controversy exists among empirical studies over whether or not these flows are meeting this objective. Generally, there are two extremes: those who argue that aid is effective and those who dispute that position.

**Aid promotes growth**

On the one hand are those who argue that aid stimulates growth and development. Papanek (1973, as cited in Mercieca, 2010), for example, found strong evidence that aid
flows are positively associated with higher growth rates in recipient countries. Reddy and Minoiu (2006) also found evidence of some positive effect of development assistance on growth while Burnside and Dollar (2000), Ekanayake and Chatrna (2010) and Driffield and Jones (2013) argue that aid does become effective but conditional on good fiscal, monetary policies and institutions.

Aid does not promote growth

On the contrary, other studies contend that aid has not been effective at all in stimulating growth nor has it been in alleviating poverty. Such a result was first reported by Boone, (1995) who conducted the first empirical study on aid effectiveness. In an attempt to predict aid effectiveness based on an analytical framework that relates aid effectiveness to political regimes, Boone found that aid does not increase investment nor does it benefit the poor. He also established that government systems do not affect the impact of aid. In a survey of aid effectiveness literature, Doucouliagos and Paldam (2009) also proved that ODA has not been effective, even after 40 years of its existence. Similarly, Moyo (2009) reveal several flaws of foreign aid to Africa. In her best-selling book titled “Dead Aid”, she strongly argue that more than US$1 trillion in development-related aid has been transferred to Africa in the past fifty years, yet the continent remains the poorest in the world with poverty levels remaining high, growth rates gradually declining and millions continuing to suffer.

Based on the above, it is evident that there is no consensus among researchers and scholars on the effect of ODA on economic growth. This disagreement may be attributed
to a number of factors including, but not limited to, the difference in the methodologies and geographic focus of the various studies. Besides, many such studies have been conducted several years back and based on large sample of developing countries some of which are starkly differently making their findings unsuitable to explain current aid-growth dynamics in specific regions and sub-regions. A common pattern across many of the studies has been the aggregation of bilateral and multilateral aid into a single variable called “aid” which might have had a confounding effect. This study takes the opposite approach. For context and clarity, the next sub-section defines and distinguishes the two types of aid under study.

**Bilateral and multilateral aid defined**

As the names suggest, bilateral aid refers to flows from one country to another while multilateral relates to a collection of aid from donor countries that is channeled through intergovernmental organizations. According to OECD, bilateral aid refers to all official development assistance provided by an official donor (state or government) directly to the government of a developing country or to a multilateral agency with use restriction. On the hand, multilateral aid is a collection of funds from donor countries that is channeled through multilateral organizations without use restrictions. Bilateral disbursements include all disbursements originating from a bilateral donor including disbursements to or through multilateral agencies while multilateral disbursements include only unrestricted funds flowing from a multilateral agency to recipient countries (Biscaye, Harris, Reynolds, & Anderson, 2015). All funds with use restriction that are channeled through multilateral organisations are classified bilateral and referred to as
earmarked aid, non-core multilateral aid or multi-bilateral aid. The International Development Association (IDA, 2007) reports that around 70 percent of ODA flows have been provided through bilateral channels and 30 percent through multilateral organizations. The share of bilateral aid to West Africa has always been larger than multilateral. In 2006 alone, OECD-DAC Statistics indicate that the flows of bilateral aid to West Africa stood at USD$14,062.65 million while multilateral stood at USD$3,575.74 million respectively. As these two channels differ in their volumes, motives, terms and conditions, so also do we expect their impacts on economic growth.

Therefore, this paper unlike previous studies, undertakes to examine the relative role of bilateral and multilateral aid in economic growth in West Africa. It differs in its methodology with many earlier studies in that it disaggregates the traditional “aid” variable into its two constituent parts. The study also uses a different dataset from the OECD-DAC statistics up to the most recent time and it is based on countries, which are similar in many respects. This is intended to contribute towards resolving the ambiguity in aid-growth relationship as well as addressing the dearth in literature on the subject in the sub-region by providing new evidence.
Chapter 3
Methodology and Data

Regression techniques

This paper will adopt the specification that was first proposed in the study on “aid, policies and growth” by Burnside and Dollar (2000) and later by Ram (2003) who modified it by dividing the “aid” variable into its two components – bilateral and multilateral. This later model by Ram, unlike its original version, allows for the estimation of the respective effects of bilateral and multilateral aid on growth. The two specifications may be written as follows with equation (1) representing the earlier model and equation (2) the modified version respectively.

**Specification of OLS model**

\[
GY_{it} = a_0 + a_1 Y_{0it} + a_2 \text{ETHNIC}_{it} + a_3 \text{ASSASS}_{it} + a_4 (\text{ETHNIC}) \ast (\text{ASSASS})_{it} + a_5 \text{INST}_{it} + a_6 (M2/GDP)_{i,t-1} + a_7 \text{SSA}_i + a_8 \text{EASIA}_i + a_9 \text{POLICY}_{it} + a_{10} (\text{BLAID}_{it} + \text{MLAID}_{it}) + u_{it} \] ............................... (1)

\[
GY_{it} = a_0 + a_1 Y_{0it} + a_2 \text{ETHNIC}_{it} + a_3 \text{ASSASS}_{it} + a_4 (\text{ETHNIC}) \ast (\text{ASSASS})_{it} + a_5 \text{INST}_{it} + a_6 (M2/GDP)_{i,t-1} + a_7 \text{SSA}_i + a_8 \text{EASIA}_i + a_9 \text{POLICY}_{it} + a_{10} \text{BLAID}_{it} + a_{11} \text{MLAID}_{it} + u_{it} \] ............................... (2)

This study will use the same model used by Ram (2003) but it will make some modifications due to the availability of data. The paper uses the following modified
models (Models 3 and 4). Model 3 separates the aid variable into bilateral aid (BLAID) and multilateral aid (MLAID) while model 4 constrained the two in a single variable: “AID”.

\[ \text{GDPpc}_{it} = a_0 + a_1 \text{BLAID}_{it} + a_2 \text{MLAID}_{it} + a_3 \text{REGQ}_{it} + a_4 \text{GDPpc}_{-1it} + a_5 (\text{INV/GDP})_{it} + a_6 \text{PRSE}_{it} + a_7 (\text{EXP/GDP})_{it} + a_8 (\text{FDI/GDP})_{it} + a_9 \text{PRMT}_{it} + a_{10} \text{POP}_{it} + u_{it} \]  \hspace{1cm} \text{(3)}

\[ \text{GDPpc}_{it} = a_0 + a_1 \text{AID}_{it} + a_2 \text{REGQ}_{it} + a_3 \text{GDPpc}_{-1it} + a_4 (\text{INV/GDP})_{it} + a_5 \text{PRSE}_{it} + a_6 (\text{EXP/GDP})_{it} + a_7 (\text{FDI/GDP})_{it} + a_8 \text{PRMT}_{it} + a_9 \text{POP}_{it} + u_{it} \]  \hspace{1cm} \text{(4)}

Where:

\( \text{GDPpc}_{it} \) denotes real GDP per capita, PPP (Constant 2011 international $) in the country \( i \) and period \( t \) (2000 ~2014),

BLAID is the ratio of (real) bilateral aid flows,

MLAID is the ratio of (real) multilateral aid flows,

AID is the ratio of (real) total aid (bilateral + multilateral),

REGQ is regulatory quality as an estimate of governance (it ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance),

\( \text{GDPpc}_{-1it} \) is the real GDP per capita at the start of the period,

INV/GDP is the ratio of investment to GDP (\%)/gross capital formation,

PRSE is the primary school enrollment rate (both sexes \( \% \)) as a proxy for human
development),
EXP/GDP is the ratio of exports to GDP (%),
FDI/GDP is the ratio of FDI inflows to GDP (%),
PRMT/GDP is the ratio of personal remittances received to GDP (%),
POP is the rate of population growth,
\( \epsilon \) is an error term.

The coefficients of interest are bilateral aid (BLAID), multilateral aid (MLAID) in equation (3) and total aid (AID) in equation (4). Since aid giving is driven by different motives and based on different conditions, it is rationale to believe that these differences will affect the outcomes of the different types differently. In this study therefore, we will attempt to understand how the difference in bilateral and multilateral aid affects GDP per capita by separating their parameters contrary to common practice of constraining them into one.

Following the literature and to mitigate against the effect of omitted variable bias which may render the results misleading, we also include a number of control variables in the models. First is real GDP per capita at the initial period – 2000 (GDPpc_1). Economic theory has it that the more advanced an economy is the lower its growth rate. This is clear in the growth records of the so-called high income nations such as the United States which recorded a growth rate of less than 3 per cent since 2010 compared to a lower-middle income country like Ghana that maintained growth of more than 3 per cent in the same period with a record performance of 14 per cent in 2011 alone. Based on this and
the convergence theory therefore, the variable GDPpc_1 is expected to have a negative coefficient. Based on the Harrod-Dommar model, which argues that investment and capital formation are imperative to promoting growth in an economy, we expect the investment (INV/GDP) and gross capital formation (FDI/GDP) variables to impact positively on the dependent variable: GDP per capita.

Also, increase in the rate of primary school enrolment means increase in the population of literate people in such vital fields areas as basic numeracy, reading and writing in a country. These increase human capital is equally critical to the development of a country. Similarly, exports will enable local populations to exchange goods internationally as well as allow them to access much-needed goods and technologies that are unavailable locally. Another key variable that affect the growth of an economy is personal remittances received. Remittance flows contributes to the economy of most, if not all, of the countries under study. In fact, many households especially those in rural areas rely heavily on the financial support of relations abroad for basic essentials including food, housing, healthcare and clothing. Thus, the variables primary school enrolment rate (PRSE), exports (EXP/GDP) and personal remittances (PRMT/GDP) are all expected to have a positive effect on economic growth in West Africa.

Many scholars including Thomas Malthus have also pointed to population as another important determinant of economic growth. Todaro and Smith (2009) states that an increase in human numbers, according to the Malthusian population theory is associated with a decline in resources. Therefore, population growth rate (POP) is expected to have
a negative coefficient in this study.

The specification also embodies the “traditional” aid variable (AID) and another, regulatory quality (REGQ), which is used as an estimate of governance systems in the countries under study. It will present the coefficient of the aid variable which combines bilateral and multilateral as well as the individual coefficients of the two components for the purpose of comparison. Both AID and REGQ are expected to have a positive effect on growth.

Data

The study analyzes panel data covering a period of fifteen years (2000 ~ 2014) for fifteen West African countries⁴... The dataset are obtained mainly from OECD-DAC Statistics, the World Bank’s World Development Indicators and World Governance Indicators (2016) databases. A table on variable sources is presented below. To address the issue of outliers and difference in measurements, all the variables (GDP per capita, bilateral aid, multilateral aid, and initial GDP per capita) that are not in the form of ratio have been logged-transformed except regulatory quality (REGQ).

---

⁴ This paper will use ECOWAS definition of West Africa which comprise 15 states including Benin, Burkina Faso, Cape Verde, Cote D’Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.
Table 1: Variables and sources

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita, PPP</td>
<td>World Bank</td>
<td><a href="https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD">https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD</a></td>
</tr>
<tr>
<td>Export to GDP ratio</td>
<td>World Bank</td>
<td><a href="http://data.worldbank.org/indicator/NE.EXP.GNFS.ZS">http://data.worldbank.org/indicator/NE.EXP.GNFS.ZS</a></td>
</tr>
<tr>
<td>FDI to GDP ratio</td>
<td>World Bank</td>
<td><a href="http://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS">http://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS</a></td>
</tr>
<tr>
<td>Gross capital formation (Investment to GDP ratio)</td>
<td>World Bank</td>
<td>data.worldbank.org/indicator/NE.GDI.TOTL.ZS</td>
</tr>
<tr>
<td>Primary school enrolment rate</td>
<td>World Bank</td>
<td><a href="http://data.worldbank.org/indicator/SE.PRM.ENRR?view=chart">http://data.worldbank.org/indicator/SE.PRM.ENRR?view=chart</a></td>
</tr>
<tr>
<td>Initial GDP per capita, PPP</td>
<td>World Bank</td>
<td><a href="http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD">http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD</a></td>
</tr>
<tr>
<td>Personal remittances to GDP ratio</td>
<td>World Bank</td>
<td><a href="http://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS">http://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS</a></td>
</tr>
</tbody>
</table>

The data on bilateral aid show that in 2006, receipts shoot up sharply due mainly to huge debt relief under the HIPC initiative which resulted into massive cancellation of debt. Nigeria’s share (of the reduction) particularly was so huge that it caused total bilateral
ODA inflow into the region to triple. We also observe that data is not uniformly available on some variables every year. This is true particularly for primary school enrolment rate and investment to GDP rate variables.
Chapter 4  
Data Analysis and Discussion

Empirical analysis

To ascertain the kind of interaction that exist between GDP per capita and each of the independent variables particularly the aid variables (bilateral, multilateral and total aid), empirical analysis is conducted. This begins with a presentation a correlation matrix and scatter plots on the relationship between the dependent variable (GDP per capita) and each of the key variables of interest (bilateral, multilateral and total aid). Then follows regression analysis where we employ different estimation techniques to determine the robustness of our findings.

Descriptive statistics

Table 2 below presents the result of correlation analysis among the variables. It shows that there is low correlation among the variables except for bilateral, multilateral and total aid. The table shows that the correlation between bilateral and multilateral aid is of the order of 0.8074. According to Ram (2003), “the well-known diagnostic suggested by Belsley, Kuh and Welsch (1980, p. 112), indicates absence of any serious (‘degrading’) collinearity” between these two variables” p.104. In fact, the link did not change the pattern of the estimates in the different models in Table 3 below. Besides, it may be due to the high levels of poverty coupled with high fiscal deficits in the countries under study, which necessitated the transfer of more external funding including bilateral and multilateral aid.
Similarly, since total aid is a sum of bilateral and multilateral aid, the correlation between the variable (total aid) and each of its partials is of the order of 0.9606 and 0.9206 respectively. To avoid multi-collinearity in our models therefore, we have excluded total aid wherever any of its partials are included.

**Scatter plots**

![Figure 2: Scatter plot of GDP per capita and bilateral aid](image)
The scatter plot above shows that there is a clear positive relationship between bilateral aid and GDP per capita in West Africa. The Figure also shows that there is less interaction variation between the two variables.

Figure 3: Scatter plot of GDP per capita and multilateral aid

Figure 3 also indicate a positive relationship between multilateral aid and GDP per capita in West Africa and less interaction variation.

Figure 4: Scatter plot of GDP per capita and total aid

Like bilateral and multilateral aid, their total (total aid) also has a positive relationship
with GDP per capita and less interaction variation as portrayed by Figure 4 above. This confirms our predicted relationship between ODA and GDP per capita in West Africa.

**Regression results**

Table 3 below shows that including control variables reduces the effect of bilateral and multilateral aid on GDP per capita. Column 2 – 5 reports the results of OLS regressions with different control variables. Without controlling for the effect of other factors, we include bilateral, multilateral and total aid variables individually in columns 2, 3 and 4 respectively. Bilateral aid has been found to be highly significant at 0.1 per cent level higher than multilateral, which is insignificant although its coefficient is of the expected sign, while total aid also became significant at 0.1% level. The estimates show that while a 1 percentage point increase in bilateral aid results in a 14.6 per cent growth in GDP per capita, a similar increase in multilateral aid spurs GDP per capita by only 6.8 per cent. Similarly, a percentage increase in total aid (combination of bilateral and multilateral aid), raises GDP per capita by 13.6 per cent. We expect that this constrained parameter (total aid) will be larger than, at least, the individual parameters of its components (bilateral and multilateral). From the Table below however, we observe that it is even slightly smaller than the single bilateral aid coefficient suggesting that the large positive effect of bilateral aid is slightly offset by the relative low impact of multilateral aid. This points to some confounding effect in the constrained parameter.

However, holding other exogenous variables constant in columns 5 (bilateral & multilateral with controls), bilateral aid remained significant at 0.1% level at a reduce rate though while multilateral aid became significant at 5% significance level. Even though
the coefficients of regulatory quality (regq) which is an estimate of governance quality and personal remittances (prmtgdp) are of the expected signs, these are statistically insignificant in the OLS models while both becomes significant in the fixed and random effect specifications as we expected.

Table 3: Regression results using unlagged data

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>OLS Models</th>
<th>Fixed Effect</th>
<th>Random Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bilateral without controls</td>
<td>Multilateral without controls</td>
<td>Total Aid without controls</td>
</tr>
<tr>
<td>logblaid</td>
<td>0.1462***</td>
<td>(0.0245)</td>
<td>0.0611***</td>
</tr>
<tr>
<td>logmlaid</td>
<td>0.0687</td>
<td>(0.0384)</td>
<td>0.0491*</td>
</tr>
<tr>
<td>logaidtotal</td>
<td></td>
<td></td>
<td>0.1362***</td>
</tr>
<tr>
<td>regq</td>
<td></td>
<td></td>
<td>0.0364</td>
</tr>
<tr>
<td>loggdppc_1</td>
<td>0.8933***</td>
<td>(0.0633)</td>
<td>0.0000</td>
</tr>
<tr>
<td>expgdpc</td>
<td>-0.0018***</td>
<td>(0.0005)</td>
<td>-0.0002</td>
</tr>
<tr>
<td>fdigdp</td>
<td></td>
<td></td>
<td>-0.0012</td>
</tr>
<tr>
<td>pop</td>
<td>-0.0545***</td>
<td>(0.0121)</td>
<td>-0.0242</td>
</tr>
<tr>
<td>invgdpc</td>
<td>0.0008</td>
<td>(0.0007)</td>
<td>0.0004</td>
</tr>
<tr>
<td>prse</td>
<td>0.0008**</td>
<td>(0.0003)</td>
<td>0.0018**</td>
</tr>
<tr>
<td>prmtgdp</td>
<td>0.0023</td>
<td>(0.0017)</td>
<td>0.0048**</td>
</tr>
<tr>
<td>_cons</td>
<td>2.8923***</td>
<td>(0.0561)</td>
<td>3.0755***</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>2.8770***</td>
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<td>225</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.090</td>
<td>0.018</td>
<td>0.065</td>
</tr>
</tbody>
</table>

Also in line with our expectation is the positive impact that primary school enrollment
rate (prse) and the negative impact that population growth has on GDP per capita in West Africa.

On the contrary, exports (expgdp) and foreign direct investment to GDP ratio (fdigdp) have been found to impact negatively on growth although at economically insignificants levels in our models. The coefficient of initial GDP per capita (loggdppe_1) which shows high positive impact on growth equally refute our hypothesis. This could be attributed to the poor nature of the economies of most, if not all, the countries in the West Africa region. Surprisingly, the investment variable (invgdp) also does not show any significant impact in our models. These unexpected results about primary school enrolment rate (prse), exports (expgdp), foreign direct investment (fdigdp) and investment to GDP (invgdp) points to the need for more in-depth study into the specific relationship between GDP per capita and these variables.

**Robustness check**

To check for the robustness of our findings, we also report the results of panel data fixed and random effect models in columns 6 and 7 of Table 3 above. Like the OLS models, both fixed and random effect models report a slightly larger coefficient for bilateral aid than multilateral. Also, the coefficients of governments’ regulatory capability (regq) became larger and statistically significant. Similarly, the impact of personal remittances to GDP also improved to 1% and 5% significant levels respectively. As shown in the OLS technique, the effects of exports (expgdp), foreign direct investment (fdigdp) and population growth rate (pop) remain negative on GDP per capita in West Africa at least
in our models. In the same way, the signs of the coefficients of primary school enrolment rate (prse) and investment to GDP (invgdp) remain as per our expectation but at statistically insignificant levels as in the OLS models.

Table 4: Regression results using lagged data on key variables

<table>
<thead>
<tr>
<th>Dependent Variable: GDP per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
</tr>
<tr>
<td><strong>Bilateral Without Controls</strong></td>
</tr>
<tr>
<td><strong>Multilateral Without Controls</strong></td>
</tr>
<tr>
<td><strong>Total Aid Without Controls</strong></td>
</tr>
<tr>
<td>logblaid</td>
</tr>
<tr>
<td>logmlaid</td>
</tr>
<tr>
<td>logaidtotal</td>
</tr>
<tr>
<td>_cons</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>R²</td>
</tr>
</tbody>
</table>

Since we did not observe a high significant impact of multilateral aid relative to bilateral as per our expectation, we have decided to lag the key variables of interest (bilateral, multilateral and total aid) for four years in Table 4 to determine if there exist any significant effect after few years. Without controlling for other explanatory variables, the findings indicate that all three are highly significant. Here again, we observe a slightly larger positive coefficient for bilateral aid over multilateral.

**Discussion**

Our analysis points to some important findings. First, it established that the constrained parameter (aid) has significantly helped to promote growth in West Africa. This finding
is in contrast with those reported by Boone (1995) and Burinside and Dollar (2000) who concluded that aid has no significant relationship with growth in a “typical” country except in the context of “good policies”. The difference in the results of this paper and those of earlier studies may be attributed to difference in the geographic focus and study periods.

Second, the findings show that bilateral aid has a higher positive impact on GDP per capita than multilateral aid in the very year of disbursement to the sub-region (Table 3). This is to some extent in line with the findings of Ram (2003), who reported a positive and sizable impact for bilateral aid and negative and large effect for multilateral aid. To attempt to answer in this paper why this has been the case is to go beyond the limit of this study. However, we believe a few factors might have been responsible. One is the difference in the actual sizes of the two. Thus, we cannot say with certainty that bilateral aid was more effective than multilateral in all circumstances because of the variance in the actual sizes – bilateral aid was always more than multilateral before and throughout the period under review. This is an important finding for aid providers in the region in that it should serve as a guide in determining which type to provide when they want to achieve immediate results.

Two other possible explanations have been advanced by Ram (2003). He states that:

…bilateral aid is apparently based on a better understanding between the donors and recipients” Cassen (1994, pp. 209, 245) has discussed the developmental advantages of bilateral programs in terms of (a) donor’s knowledge of the recipient due to historical ties, (b) donors having experience and skills in specific development fields that are ‘often
superior to those of multilateral agencies’, (c) linguistic and personal affinities, and (d) similarities of institutional structures. Second, it is possible that the stringent conditions imposed by multilateral agencies in terms of ‘structural adjustment’ and other requirements do harm, at least in the short run, relative to the growth prospects of the recipient countries. (p. 105).

Another major finding is that multilateral aid becomes also more significant after lagging for four years in Table 4. Even though the coefficients of multilateral aid remains smaller than bilateral aid contrary to our expectation, the findings in Table 4 lends some support to our hypothesis that multilateral aid has a larger positive impact on growth. This is because while both show positive effects at statistically significant levels, multilateral aid seems to have performed better given its actual relative small size. This begs to believe that multilateral aid would have yielded an even greater positive impact on growth had its actual size matched or surpassed bilateral aid. This result thus seem to be in line with the findings of Burnside & Dollar (1997) who in a similar but larger cross-country study found a higher positive impact of multilateral aid than bilateral receipts which (bilateral), they claim, was usually used for recurrent government expenditure.

Furthermore, we believe that such a higher impact for country-to-country aid, which has been found by earlier studies to not have followed aid objective as strictly as multilateral, might have been due to its relative large size. Thus, the question that remains is: what the effect of each type would have been had they been equal in real terms.
Chapter 5
Conclusion and Policy Implications

Generally, aid has been found to impact positively on growth in West Africa. The result is consistent throughout different specifications (OLS, FE, RE) used in the paper. All three techniques, as well as the scatter plots, indicate a positive relationship between aid and GDP per capita in West Africa. However, the impact of the two types differs. While bilateral aid was significant at the 0.1% significance level in the OLS models, multilateral aid was significant only at the 5% level respectively. Although both show positive signs with bilateral aid slightly larger, both have become statistically insignificant in the panel data techniques.

In terms of policy implications, we offer the following. Since some researchers including Walter Rodney (1982), Colgan (2002) and Ram (2003) have pointed to conditions attached to multilateral aid as stringent and harmful to recipient countries, it is important that multilateral agencies do an impact assessment of their aid policies on recipient countries with a view to reviewing them to achieve higher value for increasing multilateral aid.

Also, even in view of our results, we do not suggest provision of more bilateral aid over multilateral. Rather, we suggest that both donors and recipients pay attention to the primary objective of aid-giving – poverty reduction and economic growth – in providing any type. This will call for changes in current aid allocation criteria. The current practice
of allocating more to countries with good policies and institutions against poor nations with relatively weak policy environments is inhumane as it largely serves to entrench poverty and increase inequality among countries. Thus, it is the view of this paper that aid allocations not be based solely on good policy environments or other requirements different from the fundamental objective of aid. Development aid should target where poverty is severest which is in line with its objective. This is because the very fact that countries are poor could be the reason why they cannot afford better policies and institutions. Therefore, aid efforts to such countries should first target enhancing the policy environment including capacity building and institutional strengthening.

In the recipient countries, increased efforts should gear towards aligning aid to national development priorities. This is to say that recipient countries should set the agenda for aid-giving to enhance ownership which is in line with the Paris Declaration on Aid Effectiveness. It implies that recipient countries boldly objecting to any support that does not seem to fall within the country’s development needs. Similarly, harmonizing aid inflows into the countries through establishment of inter-departmental aid coordination institutions would go to minimize, if not eradicate, duplication of functions and projects by different stakeholders. This will help to effectively account for the total amount of foreign aid that a country receives which will further help to estimate to true impact of aid on economic growth.

Finally, we suggest that the purpose of aid giving should determine the type so that short-term rapid response interventions aimed at achieving immediate results are supported by
bilateral arrangements while long-term programs/projects with multilateral aid. Future research should seek to answer questions such as why bilateral aid is more effective than multilateral; why multilateral aid has not been effective in the very year of disbursement as well as; what the effect of each type would have been had they been equal in actual size.
References


Moyo, D. (2009). Dead Aid: Why aid is not working and how there is a better way for Africa. New York: Farrar, Straus and Giroux


Appendix

Table 5: Summary statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
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</thead>
<tbody>
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<td>8</td>
<td>4.330127</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
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<td>3.228439</td>
<td>.242564</td>
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<tr>
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<td>1.068557</td>
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<td>.13</td>
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<td>12.42114</td>
<td>7.919754</td>
<td>82.44639</td>
</tr>
<tr>
<td>fdigdp</td>
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<td>5.178744</td>
<td>8.011209</td>
<td>.0389421</td>
<td>29.71996</td>
</tr>
</tbody>
</table>

Table 6: ODA receipts as percentage of GNI of West African countries

<table>
<thead>
<tr>
<th>Country</th>
<th>ODA/GNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benin</td>
<td>6.3</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>9.1</td>
</tr>
<tr>
<td>Cape Verde</td>
<td>12.9</td>
</tr>
<tr>
<td>Cote D’Ivoire</td>
<td>2.8</td>
</tr>
<tr>
<td>Gambia, The</td>
<td>12.1</td>
</tr>
<tr>
<td>Ghana</td>
<td>3.0</td>
</tr>
<tr>
<td>Guinea</td>
<td>9.1</td>
</tr>
<tr>
<td>Guinea Bissau</td>
<td>9.8</td>
</tr>
<tr>
<td>Liberia</td>
<td>44.3</td>
</tr>
<tr>
<td>Mali</td>
<td>8.8</td>
</tr>
<tr>
<td>Niger</td>
<td>11.3</td>
</tr>
<tr>
<td>Nigeria</td>
<td>0.4</td>
</tr>
<tr>
<td>Senegal</td>
<td>7.1</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>18.8</td>
</tr>
<tr>
<td>Togo</td>
<td>5.1</td>
</tr>
</tbody>
</table>

5 Based on data from World Development Indicators