



UGSM-Monarch Business School Doctoral Dissertation Proposal

A Statistical Analysis of the Efficacy of Foreign Aid: A Case Study in
Sub-Saharan Africa, 1970 - 2000

PROGRAM:	D.Phil. in Economics
SUBMISSION DATE:	July 09, 2012
CANDIDATE:	Mr. Emile Kemayou, M.Sc., B.Sc.
PROPOSAL SUPERVISOR:	Dr. Christophe Schinckus, Ph.D.
THESIS SUPERVISOR:	Dr. Christophe Schinckus, Ph.D.

TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	THE RESEARCH QUESTION	4
3.0	THE RESEARCH RELEVANCE	5
4.0	CONTRIBUTION TO EXISTING KNOWLEDGE	6
5.0	RESEARCH METHODOLOGY	7
5.1	VARIABLES	8
5.2	SUB-RESEARCH QUESTIONS AND HYPOTHESES	9
5.3	INSTRUMENTATION AND MEASUREMENT	11
5.4	POPULATION, SAMPLE, AND SETTING	12
5.5	DATA COLLECTION PROCEDURES	12
5.6	DATA ANALYSIS PROCEDURES	12
5.7	ETHICAL PROJECTIONS	13
6.0	LITERATURE REVIEW	13
6.1	HISTORICAL OVERVIEW OF AID TO AFRICA	13
6.2	THEORIES OF FOREIGN AID AND ECONOMIC EFFICIENCY	16
6.3	EMPIRICAL STUDIES ON THE EFFICIENCY OF FOREIGN AID TO SSA	20
6.4	CONCLUSION OF LITERATURE REVIEW	24
7.0	RESEARCH PLAN	25
8.0	RESEARCH TIMELINE	26
9.0	RESEARCH BUDGET	27
10.0	RESEARCH PROPOSAL APPROVAL	29
	BIBLIOGRAPHY	30

1.0 INTRODUCTION

Sub-Saharan African¹ (SSA) countries have been the recipients of hundreds of billions of dollars of foreign aid since the formation of the post-war financial system at Bretton Woods (Moyo & Ferguson, 2010). As Glennie (2008) suggests, such aid has had a dual purpose: to address short-term humanitarian need and to build long-term strength in the economic and social institutions of SSA. Foreign aid dropped significantly in the 1990s, partly because donor countries argued that aid was not succeeding in achieving anticipated goals (Lancaster, 2007). For instance, donor countries were frustrated with the apparent lack of correlation between foreign aid and the strengthening of economic and social institutions in SSA (Fengler & Kharas, 2010).

SSA continues to present important challenges to the global donor community. Although foreign aid to SSA countries dropped in the 1990s, it has not ceased. Some countries, Sweden and some European economies in particular, have become larger foreign aid donors in recent years (Robinson, 2011). China and India, contemplating their increasing importance in the global economy, have also become more prominent donors to SSA (Noman, Botchwey & Stein, 2012). Scholars continue to build the case for, or against, foreign aid to SSA, with two

¹ *Sub-Saharan Africa*: The United Nations defines Sub-Saharan Africa as every country in Africa but Algeria, Egypt, Libya, Morocco, South Sudan, Sudan, Tunisia and Western Sahara; that is as every African country that is not a part of Arab Northern Africa (United Nations, 2011).

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

broad divisions having emerged: scholars who argue that foreign aid is beneficial and scholars who argue that foreign aid engenders inefficiencies in the recipient country and therefore fails in achieving its goal of “institution-strengthening” (Van Deer Veen, 2011). In particular, the anti-foreign aid argument is that the influx of aid money feeds an inefficient bureaucracy, is siphoned off by corruption and creates market distortions that prevent recipient countries from building rational and resilient institutions of their own (Mavrotas, 2010). The pro-foreign aid argument is that, while foreign aid might be misused in a number of ways, it leaves the recipient countries better off than they would be otherwise and is efficacious in its own right (Lehman, 2011). In recent years, scholars have used statistical and empirical models to test pro-foreign and anti-foreign aid arguments (Palmer & Morgan, 2011). Early models of this kind focused on a handful of economic indicators, such as Gross National Product (GNP) (Groh, 2010). However, there are numerous economic and social indicators whose response to foreign aid has not yet been tested, and for which analyses could shed further light on the question of whether or not foreign aid is effective.

2.0 THE RESEARCH QUESTION

The purpose of this quantitative, correlative study is to determine whether or not foreign aid to SSA nations from the 1970 to 2000 period has been effective in

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

improving a number of key economic and social indicators, thus, the main research question is as follows.

Main Research Question:

“To what extent has foreign aid contributed to the betterment of economic and social conditions of Sub-Saharan African countries between the years 1970 to 2000?”

3.0 THE RESEARCH RELEVANCE

The research will attempt to explore some development problems that hinder SSA countries. The first, and most fundamental, problem is that most SSA nations continue to be mired in poverty, inefficiency and social upheaval, giving rise to a global humanitarian problem (Nanjira, 2010). The second, policy-related, problem is that foreign aid donors have few statistical indicators to draw upon to measure the usefulness of their aid; consequently, there appears to be only a weak rational basis for issuing foreign aid, since the economic and social benefits of foreign aid have not been reliably quantified (Riddell, 2007).

The contemplated research seeks to determine whether foreign aid to SSA countries, for the period from 1970 to 2000, has been effective in improving a number of key economic and social indicators. The study is delimited to analyzing

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

the benefits of foreign aid to recipient countries in SSA and is not concerned with measuring the benefits to donor countries, such as the purchase of local influence or the accumulation of soft power. The study stops with 2000 data in order to test the residual power, if any, of past aid, through time series analysis whose purpose is to determine whether or not past foreign aid, once ceased, continued to have a lingering beneficial effect on recipient countries.

4.0 CONTRIBUTION TO EXISTING KNOWLEDGE

There are 50 countries in the United Nations' (2011) definition of the Sub-Saharan zone. There are hundreds of World Bank indicators of aid effectiveness, ranging from Gross Capital Formation (GCF) to malnutrition. There are also several statistical models that can be used to measure aid effectiveness, ranging from analysis of variant methods that can be used to compare recipient countries by volume of aid to regression models and time series analysis that can be used to determine how efficiently individual recipient countries have utilized their foreign aid. The profusion of data, indicators, and models means that there are many ways in which the effectiveness of foreign aid to SSA countries can be measured. The intense and ongoing debate over the effectiveness of aid is, at its core, an argument about statistics, with one side claiming that aid cannot be associated with significant improvements in SSA institutions, and the other side claiming that aid has been effective. The ultimate purpose of the contemplated research is to

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

explore the respective validity of these positions through a statistical analysis of foreign aid, economic, and social data. While such studies have been carried out frequently, the contribution of the research will be to (a) include smaller SSA countries in the analysis, (b) go beyond traditional regression and employ autocorrelation / partial autocorrelation to test for the lagging effectiveness of foreign aid, and (c) include a wider variety of social and economic indicators as dependent models in the study design. Each of these approaches will address gaps in the literature related to the effectiveness of aid to SSA.

5.0 RESEARCH METHODOLOGY

As indicated earlier, the purpose of this study is to determine whether or not foreign aid to SSA countries, from the 1970 to 2000 period, has been effective in improving a number of key social and economic indicators in those countries. The study addresses the policy-related dimension of foreign aid to Africa, which is that, foreign aid donors have few statistical indicators to draw upon the usefulness of their aid (Riddell, 2007). The remainder of this chapter will describe and defend the design of the study and highlighting novel aspects of its approach.

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

5.1 VARIABLES

The study's variables are as follows:

TABLE 1 Research Variables		
Independent Variables	Intermediate Variables	Dependent Variables
Foreign Aid	Quality of Government	- Economic Indicators - Social Indicators

Foreign aid will be quantified as Official Development Assistance² and obtained from the World Bank's (2012) database. Quality of governance will be measured through the Worldwide Governance Indicators (WGI) provided by the World Bank (2012a). The Worldwide Governance Index consists of six governance variables: Voice and Accountability, Political Stability and Absence of Violence, Governance Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption.

The World Bank ranks each of these six indicators with a 5-point sliding scale in which the lowest rating is -2.5 and the highest rating is 2.5. One drawback of these data is that they are only available for 1996 onwards; however, no reliable governance indicators seem to exist for previous years, so the World Bank data are appropriate measures for the intermediate variable of governance quality.

Economic and social indicators constitute the dependent variables of the study.

² *Official Development Assistance* (ODA): (Klein, 1994) defines ODA as "grants or loans by agencies of governments or multilateral organizations to promote economic development or warfare; thus, military assistance and official export credits are excluded" (P. 14). ODA is tracked by the World Bank (2012).

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

They are classified as follows:

TABLE 2	
Classification of Dependent Variables	
Economic Indicators	Social Indicators
<ul style="list-style-type: none"> ➤ Gross Domestic Product (GDP) growth ➤ Income share held by lowest 20% ➤ Vulnerable employment, total (% of total employment) ➤ Export of goods and services (% annual growth) ➤ Gross Capital Formation (annual % growth) ➤ Total reserves (% total external debt) 	<ul style="list-style-type: none"> ➤ Contraceptive prevalence (% of women 15 – 49) ➤ Improve sanitation facilities (% of population with access) ➤ Incidence of tuberculosis (per 100,000 people) ➤ Life expectancy at birth, female (years) ➤ Life expectancy at birth, male (years) ➤ Malnutrition prevalence, weight for age (% of children under 5) ➤ Maternal mortality ration (per 100,000 births) ➤ Pregnant women receiving prenatal care (%) ➤ Prevalence of HIV (% total of population 15 – 49) ➤ Teenage mothers (% of women 15 – 19 who have been or are currently pregnant) ➤ Mortality rate, under 5 (per 1,000 live births)

5.2 SUB-RESEARCH QUESTIONS AND HYPOTHESES

With the aim to address the main research question previously outlined, the research will attempt to explore the following sub-research questions and hypotheses:

- Sub-Research Question 1: *What is the correlation between foreign aid and the chosen economic indicators (CEI)?*

H₁₀: There is no correlation between foreign aid and the CEI

H_{1A}: There is correlation between foreign aid and the CEI

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

- Sub-Research Question 2: *What is the correlation between foreign aid and the chosen social indicators (CSI)?*
 - H₂₀: There is no correlation between foreign aid and the CSI
 - H_{2A}: There is correlation between foreign aid and the CSI

- Sub-Research Question 3: *What is the mediating or the moderating role of Quality of Governance between the independent variable of foreign aid and the dependent variables of the chosen economic indicators?*
 - H₃₀: Quality of Governance does not alter the correlation between foreign aid and the chosen economic indicators
 - H_{3A}: Quality of Governance alters the correlation between foreign aid and the chosen economic indicators

- Sub-Research Question 4: *What is the mediating or the moderating role of Quality of Governance between the independent variable of foreign aid and the dependent variables of the chosen social indicators?*
 - H₄₀: Quality of Governance does not alter the correlation between foreign aid and the chosen social indicators
 - H_{4A}: Quality of Governance alters the correlation between foreign aid and the chosen social indicators

- Sub-Research Question 5: *What is the autocorrelation between aid in a year x and economic indicators in any of the years $x+1 \dots x+10$?*
 - H₅₀: There is no autocorrelation between aid in a year x and economic indicators in any of the years $x+1 \dots x+10$
 - H_{5A}: There is autocorrelation between aid in a year x and economic indicators in any of the years $x+1 \dots x+10$

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

- Sub-Research Question 6: *What is the autocorrelation between aid in a year x and social indicators in any of the years $x+1 \dots x+10$?*

H₆₀: There is no autocorrelation between aid in a year x and social indicators in any of the years $x+1 \dots x+10$

H₆_A: There is autocorrelation between aid in a year x and social indicators in any of the years $x+1 \dots x+10$

- Sub-Research Question 7: *What is the partial autocorrelation between aid in a year x and economic indicators in any of the years $x+1 \dots x+10$?*

H₇₀: There is no partial autocorrelation between aid in a year x and economic indicators in any of the years $x+1 \dots x+10$

H₇_A: There is partial autocorrelation between aid in a year x and economic indicators in any of the years $x+1 \dots x+10$

- Sub-Research Question 8: *What is the partial autocorrelation between aid in a year x and social indicators in any of the years $x+1 \dots x+10$?*

H₈₀: There is no partial autocorrelation between aid in a year x and social indicators in any of the years $x+1 \dots x+10$

H₈_A: There is partial autocorrelation between aid in a year x and social indicators in any of the years $x+1 \dots x+10$

5.3 INSTRUMENTATION AND MEASUREMENT

The instruments for the study will be the World Bank's (2012, 2012a) data pertaining to the variables of the study. The World Bank is a credible data source that is frequently used in literature. The measures of the variables in the World

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

Bank's data set were specified in the discussion related to the study of variables earlier in the chapter.

5.4 POPULATION, SAMPLE, AND SETTING

The setting and population of this study consist of 50 nations of SSA. Data for each of these countries will be collected. However, it is likely that there will be incomplete data available for some of the smaller countries in the population.

Imputation and related statistical methods will be used to overcome the challenges posed by missing data.

5.5 DATA COLLECTION PROCEDURES

Data will be collected through online download from the World Bank's (2012, 2012a) data set. The World Bank provides data free and with no restrictions on educational use and no permission will be necessary for obtaining the data.

5.6 DATA ANALYSIS PROCEDURES

Data will be analyzed with the assistance of SPSS™ software. The means of analyses will include correlation (including bivariate, monotonic, and autocorrelation variations), regression, analysis of variance, and Chi-Square.

Other means of analysis will be used as data warrant.

5.7 ETHICAL PROJECTIONS

The study will draw upon secondary economic data from the World Bank's Website and therefore do not intend to create or falsify data. No human subject will be interacted in the course of the study. There are no ethical implications of data collection, analysis and dissemination.

6.0 LITERATURE REVIEW

The purpose of this literature review is to examine how past scholarship has analyzed foreign aid to SSA. This topic has several dimensions relevant to the fields of economics, international relations, and political science.

6.1 HISTORICAL OVERVIEW OF AID TO AFRICA

The modern era of aid to SSA countries is best studied in the context of the post-war Bretton Woods financial and monetary system which created both the institution and context for contemporary foreign aid; furthermore, the first two decades of the Bretton Woods era also coincide with the independence of many Sub-Saharan African countries, further justifying the claim that modern era of foreign aid to SSA began in 1945 (James, 1996).

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

The Bretton Woods institutions were created in order to cement the post-war economic order primarily around the interests of the United States but also with an emphasis on protecting and promoting the prosperity of Western European economies (Krugman & Wells, 2009). At the beginning of its history some of the Bretton Woods institutions betrayed hostility toward African economic interests. For example, according to Schachter (1995), the Global Agreement on Tariffs and Trade (GATT), a creation of Bretton Woods, enforced protectionism against the kind of goods that were heavily exported by SSA countries. These kinds of policies resulted in economic harm not only to SSA but to developing countries in general; “the developing country share of total world trade fell from 32 percent in the early 1950s to 17 percent in 1972” (Schachter, p. 534). During this time several SSA countries lobbied for increased aid. The position of these countries was that SSA suffered inordinately because of the era of slavery and colonialism perpetuated by the United States and Europe, and that SSA was continuing to suffer under a global economic regime that was unfriendly to African interests. As a consequence, the argument went that SSA nations suffered economic crises for which the developed world bore some responsibilities and that an increase in foreign aid was therefore a proper moral response.

Unfortunately, as Wint (1995) pointed out, “the Bretton Woods institutions have focused insufficiently on the devastating conditions of the poor in the developing

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

countries” (p. 81). However, in the 1950s and 1960s, the community of developed nations reformed the international finance system so as to make foreign aid to SSA easier to obtain. In 1963, the International Monetary Fund (IMF) created the Compensatory Financing Facility (CFF), whose purpose was to extend a limited amount of credit to emerging economies suffering from temporary declines in export revenues (Ajami & Goddard, 2006). In 1975, due to prompting from individual developing countries, as well as by the United Nations Conference on Trade and Development, the IMF eased the previously stringent lending limit on the CFF. In 1974, the IMF created the Extended Fund Facility, which made more money available to developing nations embarking on structural adjustments and needing funds beyond the limit of normal lending (Preeg, 1985). In alignment with these developments wealthy nations in the Global North expanded their unilateral foreign aid grants to Africa (Hudson, 2005).

The heyday of foreign aid to Africa was from 1975 to the 1990s. The increase in foreign aid was driven by numerous forces, including: (a) the lobbying of SSA countries for more aid (Robinson, 2011), (b) the maturation of the Bretton Woods system into a format that was friendlier to the needs of developing countries (Noman et al., 2012), and (c), increased aid appetite in developed countries driven by both an increase in humanitarian sentiment and the realization of the various soft power advantages conferred by foreign aid (Van Deer Veen, 2011).

A Statistical Analysis of the Efficacy of Foreign Aid: A Case Study in Sub-Saharan Africa, 1970 - 2000

In the 1990s, however, foreign aid to Africa began to drop. Several important events were responsible for this change in foreign aid flow. First, Japan underwent a decade-long economic slump and West Germany was required to pay the cost of re-unification with East Germany (Robinson, 2011). Two of the leading nations within the rubric of foreign aid thus developed new economic priorities that precluded sending high volumes of foreign aid to Africa. Second, after the fall of the Soviet Union the United States felt more secure about its own geostrategic position in Africa and therefore further reduced its own aid to this region (Krugman & Wells, 2009). Third, economists and policy-makers in many leading donor countries reached the conclusion that foreign aid did not achieve its long-term goals of institution-building in Africa (Moyo & Ferguson, 2010). The combination of aid fatigue, economic crises, and political change thus contributed to reducing foreign aid to Africa (Fengler & Kharas, 2010).

6.2 THEORIES OF FOREIGN AID AND ECONOMIC EFFICIENCY

One major theoretical argument against the efficiency of foreign aid is that of moral hazard³. In foreign aid theory the moral hazard argument is when a recipient country knows that aid is coming that they can engage in unwise and risky policy (Eichengreen, 2000). In other words, if countries rely on foreign aid then they are

³ Krugman & Wells (2009) define moral hazard as the situation that results when one party has an incentive to behave irresponsibly because the second party is assuming risks on behalf of the first party.

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

likely to risk more than they would in the absence of aid (Moyo & Ferguson, 2010).

Another argument against the efficiency of foreign aid is that of corruption which some scholars treat as moral hazard but which other scholars class separately (Eichengreen, 2000; Moyo & Ferguson, 2010). The corruption argument is that foreign aid to Africa and other developing regions is easily co-opted by local elites who allocate the money to non-productive purposes (De Haan & Sturm, 2000). In a sense the moral hazard argument can be said to apply to a country's entire government apparatus whereas the corruption argument is typically leveled against the most powerful elements within a government.

Another theoretical perspective on the efficiency of foreign aid is that of dependency theory⁴. Dependency theorists have argued that foreign aid is inefficient not because the concept of foreign aid is misplaced in itself, but because it is a form of exploitation (Clemens, 2004). The main form of exploitation within foreign aid, according to dependency theorists, is that of conditionality (Barrett & Whyte, 1982). Foreign aid money comes with both formal and implied conditions attached some of which are actually harmful to local economies. One example of conditionality that hurt a SSA country is that of Sierra Leone in the 1980s. As a condition of receiving international aid through the IMF Sierra Leone was required

⁴ Kendall (2008) summarizes dependency theory as follows: "global poverty can be, as least, partially attributed to the fact that the low-income countries have been exploited by the high-income countries" (P. 269)

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

to de-nationalize its diamond industry a strategy that was designed to flood the Western market with cheap diamonds but which also had the effect of promoting a civil war within Sierra Leone over the control of diamond mines (Bangura, 2000). Therefore, dependency theorists are often in agreement with moral hazard and corruption theorists with the difference being that dependency theorists do not place the onus of blame for inefficiency on SSA countries themselves. Rather, they believe that this inefficiency is a product of post-colonial behavior (Silberfein, 2004). The dependency theory argument is that even if SSA nations wished the conditionality of foreign aid prevents them from putting money to its best economic use (Silberfein, 2004). In this light, Bakoup (2009) argues that some donors bind the granting of aid to its use by recipient countries to acquire goods and services from the donor countries; he further argues that studies have demonstrated that this practice diminishes the value of aid by restricting the scope of competition and therefore forces these recipient countries to acquire goods and services at higher cost than if they had been obtained in open competition. More often, foreign aid is delivered in a way that promotes the economic interests of the donor nation while hurting the recipient nation (Bangura; Clemens; Silberfein).

As a result, there is a broad consensus in the literature that foreign aid is inefficient. Scholars from a variety of backgrounds have conceded the point that SSA nations do not appear to be putting foreign aid money to its best use

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

(Bangura; 2000; Hudson, 2005; Moyo & Ferguson, 2010; Silberfein, 2004; Bakoup, 2009). Where scholars genuinely disagree is on the question of blame. Dependency theorists and scholars on the left tend to implicate donor countries as part of the mechanism of inefficiency (Bangura; Silberfein); moral hazard and corruption theorists (Moyo & Ferguson) believe that more of the fault lies with recipient nations themselves. Moral hazard and corruption theorists have neoclassical assumptions about market freedom and assume that SSA countries are more or less free to form institutions and policies in accordance with rational self-interest (Moyo & Ferguson, 2010). Dependency theorists are influenced by Marxist economics in which the notion of economic actors' freedom of action is de-emphasized in favor of economic and political determinism (Silberfein, 2004). The dispute between these two theories has important consequences for foreign aid policy.

If dependency theorists are right, then the problem with foreign aid rests on the side of donor nations and the solution is not to reduce the volume of foreign aid but rather to strip it from conditionality while also working to strengthen SSA institutions in other ways. If moral hazard and corruption theorists are right then the problem rests on the side of recipient nations whose expectations of foreign aid create or at least perpetuate forms of inefficient behavior such as corruption, influence-peddling, and centralized economic decisions.

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

One point on which dependency theorists and moral hazard and corruption theorists can agree is that the efficiency of foreign aid is lowered by the action of recipient governments regardless of who is to be blame for these actions or how they can be managed. There is consensus at least among neoclassical economists and others in the neoliberal camp that in order for foreign aid to be efficient it has to flow as freely as possible into productive uses in the private sector (Krugman & Wells, 2009). For such efficient trade flows to take place the government of recipient nations has to play two roles: 1. aid recipient governments must build strong institutions that are capable of reducing corruption, and; 2. aid recipient governments have to get out of the way avoiding the temptation to siphon off aid money and allowing it instead to flow into the private sector. In reality, SSA is characterized by weak institutions, kleptocratic government, self-enlarging bureaucracies, and private sectors that are incestuously close to government (Shillington, 2012). These reasons help to explain why, in previous empirical studies, the efficiency of foreign aid to SSA has been so low.

6.3 EMPIRICAL STUDIES ON THE EFFICIENCY OF FOREIGN AID TO SSA

While there has been broad consensus (Bangura, 2000; Hudson, 2005; Moyo & Ferguson, 2010; Silberfein, 2004) that foreign aid to SSA has been inefficient in achieving its two goals: humanitarian relief and improvement of economic

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

performance there is much disagreement in the empirical literature. Part of the reason for the disagreement is that there are many ways of empirically modeling the efficiency of foreign aid. The World Bank (2012), for example, measures aid effectiveness through 21 variables ranging from carbon dioxide emissions per capita to the percentage of teenage mothers. Scholars have measured aid effectiveness through additional variables especially economic variables, such as: GDP, GCF, and National Income. It is important to note that the combination of a number of factors creates millions of possible datasets through which the question of foreign aid effectiveness can be measured. The factors in question are: 1. the 60 countries of the SSA, 2. the 60 years during which there has been significant aid to the region, 3. the hundreds of economic and social indicators that can plausibly be considered, and 4. the number of possible statistical approaches to the problem of modeling. Naturally then, empirically-oriented scholars have not been able to render a comprehensive model of foreign aid efficiency but there are some particular influential models in the literature.

A study conducted by Gomanee, Girma, and Morrissey (2005) revealed that aid to 25 SSA countries correlated positively with growth over the 1970 – 1997 timeframe. In particular, Gomanee et al. (2005) discovered that:

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

“each one percentage point increase in the Aid/GNP ratio contributes one-quarter of one percentage point to the growth rate. Africa’s poor growth record should not therefore be attributed to aid ineffectiveness.” (p.1055)

The main limitation of this study was the size of the sample, which excluded half of the SSA countries. Another limitation is that the only dependent variable of the study was GNP. Foreign aid is intended, at least in theory, not only to contribute to economic growth but also to strengthen both economic and social institutions over the long term (Lahiri, 2007). Since Gomanee et al. did not measure any social institutions and also neglected to measure changes in economic variables, for example bank lending rates, their study did not necessarily address many of the concerns of anti-foreign aid scholars such as Moyo and Ferguson (2010). One way in which the Gomanee et al. (2005) study could have tested the long-term rather than the short-term correlation between foreign aid and economic growth was to use autocorrelation and partial autocorrelation to determine if the aid-growth relationship in a particular year correlated with the aid-growth relationship in subsequent years. Even if the aid-growth correlation is accepted, it remains to be determined whether aid is associated with growth solely in the year in which it is given or whether aid has residual effects on economic growth in future years as well. If foreign aid is slightly efficient then it is likely to be autocorrelated highly with growth in future years. One of the weaknesses of the study of Gomanee et al. is

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

that it does not examine the relationship between aid in a given year and growth in future years due to the fact that the study uses a simple bivariate model and not an autocorrelation model. One of the strengths of the contemplated research is the use of autocorrelation to test the residual efficiency of aid.

Lensink and White (2001) conducted an interesting empirical study in which it was hypothesized that the aid-growth correlation becomes negative only at a particular point. Lensink and White's work found evidence of such a turning point in the aid-growth correlation which provides support to the moral hazard theory. The implication of Lensink and White's findings is that foreign aid can indeed be too high; there is a Goldilocks effect in that there is a level of foreign aid that is just right for promoting growth. Going below or above this level can result in negative consequences; too little aid will not stimulate growth and too much aid will activate more moral hazard and perhaps corruption as well. Thus, if Lensink and White are correct, the task of foreign aid analysts is to find the optimum level of foreign aid based on past trends in the data. In the contemplated research the findings of Lensink and White will be tested through the use of monotonic correlation which is more likely to find the so-called turning point in the aid-growth relationship than would bivariate correlation.

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

TABLE 3
The Six Components of WGI as defined by the World Bank (2012a)

Component	Description
Voice and Accountability	Reflects perceptions of the extent to which a country's citizen are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media;
Political Stability and Absence of Violence	Reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism;
Government Effectiveness	Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies;
Regulatory Quality	Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development;
Rule of Law	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence;
Control of Corruption	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests;

Brautigam and Knack (2004) conducted a seminal study on the correlation between aid and the quality of governmental institutions in SSA. They discovered a significant negative correlation between foreign aid to SSA and various variables of governmental quality. This finding is highly important because it suggests that the correlation between aid and economic indicators or between aid and social indicators is strongly moderated by the quality of government. Thus, any study that

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

focuses on the efficiency of aid has to take Governance into account as an intermediate variable. One of the shortcomings of the Brautigam and Knack (2004) study was the use of a single index variable to test for Governance quality. The World Bank (2012a) provides six such variables each of which will be drawn upon as intermediate variables in the contemplated research.

6.4 CONCLUSION OF LITERATURE REVIEW

The review of the literature suggests that scholars from varying theoretical orientations (Bangura, 2000; Hudson, 2005; Moyo & Ferguson, 2010; Silberfein, 2004) agree that foreign aid to SSA has been inefficient but there is little consensus on why the aid has been inefficient or how the inefficiency can be quantified. The research methodology highlighted herein is designed to add clarity to the problem of how to quantify the inefficacy of foreign aid to Sub-Saharan Africa.

7.0 RESEARCH PLAN

The research is designed as an empirical exploration of the important theoretical and policy debates pertaining to foreign aid directed at SSA countries from donor nations in the Global North. It will examine the connections, if any, between foreign aid for the period of 1970 to 2000 with respect to the 50 SSA countries and the

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

improvement in a set of economic and social variables with the quality of governance serving as an intermediate variable. Drawing on World Bank data the statistical analysis will quantify the efficacy of foreign aid on 17 variables and will also draw upon time series analyses to determine whether there is a lag effect of foreign aid on the improvement of SSA economic and social institutions. If foreign aid is found to be effective in improving economic and social outcomes then there is a case to be made to reverse the decline of foreign aid to SSA that began in the 1990s and continues in contemporary times. On the other hand, if foreign aid is found to be ineffective in improving economic and social indicators then there is a case to be made that foreign aid is an inappropriate means of addressing Africa's various development problems.

8.0 RESEARCH TIMELINE

Table 4 below provides an overview of the expected milestones of the research. The timeline is subject to change but all attempts will be made to ensure completion of the proposed study within the prescribed timeline.

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

TABLE 4
Research Timeline

Date	Milestone
April 2012 – October 2012	Research Proposal: Completion, Submission and Approval
October 2012 – June 2013	Literature Research and design - Draft introduction and Literature review
June 2013 – December 2013	Research and Data Collection - Draft Methodology and Data presentation
December 2013 – August 2014	Final preparation of thesis - Draft conclusion and Recommendation
August 2014 – December 2014	Review, Editing and Layout of the Dissertation
December 2014 - April 2015	Defense preparation - Final Draft of Dissertation - Submission of Dissertation - Defense

9.0 RESEARCH BUDGET

The total cost of the proposed study is estimated at US\$ 19,320 and detailed in Table 5 below. No additional funding or scholarly financial support is being requested of third parties or from any external sources. No extra supervisory costs or other cost are being requested from UGSM-Monarch Business School Switzerland. The present research is fully funded and may begin when approved.

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

TABLE 5
Research Budget

Activity	Cost (US \$)
Travel Cost	5,500
Lodging Expenses	2,500
Communication	1,500
Books and Related costs	2,500
Computer Hardware and Software	2,300
Supplies and Related costs	1,000
Reproduction Expenses	1,500
Contingency	2,520
Total Estimated Budget	19,320

10.0 RESEARCH PROPOSAL APPROVAL

The contemplated research proposed herein has been approved by the University and the student may commence the research immediately. The student is not to deviate from the proposed research unless expressly confirmed by both the supervisor and the University in written form.



Approved By The University On
12-Nov-2012 in Zug-Switzerland
By: Dr. Jeffrey Henderson, D.Phil.

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

BIBLIOGRAPHY

1. Ajami, R. (2006). *International business: Theory and practice*. New York, NY: M.E. Sharpe.
2. Bangura, Y. (2000). *Strategic policy failure and governance in Sierra Leone*. The journal of Modern African Studies, 38, 551-557.
3. Bakoup, F. (2009). *L'Afrique peut-elle gagner sa place dans la mondialisation ?* Paris, France: L'Harmattan.
4. Barrett, R. (1982). *Dependency theory and Taiwan: Analysis of a deviant case*. American Journal of Sociology, 87(5), 1064-1089
5. Brautigam, D. (2004). *Foreign aid, institutions, and governance in Sub-Saharan Africa*. Economic Development and Cultural Change, 52(2), 255-285
6. Clemens, W. (2004). *Dynamics of international relations*. Philadelphia, PA: Rowman & Littlefield
7. De Haan, J. (2000). *On the relationship between economic freedom and economic growth*. European Journal of Political Economy, 16, 215-241
8. Eichengreen, B. (2000). *Can the moral hazard created by IMF bailouts be reduced?* London, England: Center for Economic Policy Research.
9. Fengler, W. (2010). *Delivering aid differently: Lessons from the field*. Washington, DC: Brookings.
10. Glennie, J. (2008). *The trouble with aid: Why less could mean more for Africa*. London, England: Zed Books.
11. Gomanee, K. G. (2005). *Aid and growth in Sub-Sahara Africa: Accounting to transmission mechanisms*. Journal of International Development, 17(8), 1055-1075
12. Groh, S. (2010). *Effectiveness of development aid in fragile states*. Berlin, Germany: GRIN Verlag.
13. Hudson, M. (2005). *Global fracture: The new international economic order*. San Francisco, CA: Pluto Press
14. James, H. (1996). *International monetary cooperation since Bretton Woods*. Washington, DC: International Monetary Fund.
15. Kendall, D. (2008). *Sociology in our times*. New York, NY: Cengage

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

16. Klein, T. (1994). *External debt management: An introduction*. Washington, D.C.: World Bank
17. Krugman, P. (2009). *Macroeconomics*. New York, NY: Worth Publishers
18. Lahiri, S. (2007). *Theory and practice of foreign aid*. New York, NY: Elsevier
19. Lancaster, C. (2007). *Foreign aid: Diplomacy, development, domestic politics*. Chicago, IL: University of Chicago Press
20. Lehman, H. (2011). *Japan and Africa: Globalization and foreign aid in the 21st century*. New York, NY: Taylor & Francis
21. Lensink, R. & White, H. (2001). *Are there negative returns to aid?* *Journal of Development Studies* , 37(6), 42-65
22. Mavrotas, G. (2010). *Foreign aid for development: Issues, challenges, and the new agenda*. Oxford, England: Oxford University Press
23. Moyo, D. & Ferguson, N. (2010). *Dead aid: Why aid is not working and how there is a better way for Africa*. New York, NY: Macmillan
24. Nanjira, D. (2010). *African foreign policy and diplomacy: From antiquity to the 21st century*. New York, NY: ABC-CLIO
25. Noman, A. B. (2012). *Good growth and governance in Africa: Rethinking development strategies*. Oxford, England: Oxford University Press
26. Noman, A. B. (2012). *Good growth and governance in Africa: Rethinking development strategies*. Oxford, England: Oxford University Press
27. Palmer, G. & Morgan, T.C. (2011). *A theory of foreign policy*. Princeton, NJ: Princeton University Press
28. Preeg, E. H. (1985). *Hard bargaining ahead: U.S. trade policy and developing countries*. Piscataway, NJ: Transaction Publishers
29. Riddell, R. (2007). *Does foreign aid really work?* Oxford, England: Oxford University Press
30. Robinson, J. (2010). *Foreign aid: a global foreign policy tool for Germany* . Berlin, Germany: GRIN Verlag
31. Schachter, O. (1995). *United Nations legal order*, volume 1. Cambridge, England: Cambridge University Press
32. Shillington, K. (2012). *A history of Africa*. New York, NY: Palgrave Macmillan
33. Silberfein, M. (2004). *The geopolitics of conflict and diamonds in Sierra Leone*. *Geopolitics*, 9(1), 213-241

A Statistical Analysis of the Efficacy of Foreign Aid:
A Case Study in Sub-Saharan Africa, 1970 - 2000

34. United Nations (2011). Composition of macro geographical (continental regions), geographical sub-regions, and selected economic and other groupings Retrieved from <http://unstats.un.org/unsd/methods/m49/m49region.htm#africa>. United Nations
35. Van Deer Veen, A. (2011). *Ideas, interests, and foreign aid*. Cambridge, England: University of Cambridge Press
36. Wint, A. (1995). *Corporate management in developing countries*. Westport, CT: Greenwood Publishing Group.
37. World Bank (2012). Development indicators. Retrieved from <http://data.worldbank.org/indicator/all>. The World Bank.
38. World Bank (2012a). The worldwide governance indicators project. Retrieved from <http://info.worldbank.org/governance/wgi/index.asp>