

TO AID OR NOT TO AID?
COMPETING NARATIVES ON EFFICACY OF FOREIGN AID IN
SUB-SAHARAN AFRICA

A Junior Scholars Thesis

by

KALEISHA NICOLE STUART

Submitted to the Office of Undergraduate Research
Texas A&M University
in partial fulfillment of the requirements for the designation as

UNDERGRADUATE RESEARCH SCHOLAR

April 2011

Majors: Political Science and Economics

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Approved by:

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ABSTRACT

To Aid or Not to Aid?
Competing Narratives on the Efficacy of Foreign Aid in Sub-Saharan Africa.
(April 2011)

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While the last half century gave rise to over a dozen developing nations whose economic expansion surpassed the growth rates of many industrialized economies, the same fifty years witnessed a majority of aid-dependent Sub-Saharan Africa suffer from economic stagnation and in some cases even regression. Poverty eradication and development is a prominent feature of the foreign policy agendas of most of the developed world. However, with much of the modern literature touting empirical evidence denouncing the capability of foreign assistance to positively impact the economic condition of underdeveloped countries, it is clear that aid effectiveness must be measured beyond aggregate economic variables such as gross national product or per capita income. The recent transition from an economic to a human development focused examination of the role of foreign aid has incited further investigation into whether human welfare can be improved through development assistance. Additionally, the question of whether

targeted foreign aid flows designed to address specific human development goals can be a successful development tool has been left unanswered. Many experts predict the Sub-Saharan region as least likely to achieve the Millennium Development Goals set in 2000 at the United Nations, yet much of the literature on aid effectiveness has neglected to focus on Sub-Saharan Africa specifically. The following analysis addresses the fundamental question of whether foreign aid is effective for accomplishing the development goals for which it is intended. This thesis is a cross-national analysis of Sub-Saharan Africa testing the efficacy of foreign aid flows on human welfare as measured by health outcomes. The amount of foreign aid is not significantly correlated with nominal health outcomes. The results of the efficiency model refute the presupposition that more aid increases a given country's ability to more efficiently provide health care for its citizens. The results indicate that aid does not have a significant positive relationship with efficiency, and may have the opposite effect. The final model analyzed whether aid positively impacted a country's prospects for eventual independence. This was the first model to suggest a positive relationship between aid and health outcome.

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Lastly, I offer my appreciation to all of those who supported me in any respect during the completion of this project.

DEDICATION

To Africa.

“To the Excellencies and officials of Europe: We suffer enormously in Africa. We have problems in Africa. We lack rights as children. We have war and illness, we lack food... We want to study, and we ask you to help us study so we can be like you, in Africa.”

Message found on the bodies of Guinean teenagers Yaguine Koita and Fode Tounkara, stowaways who died attempting to reach Europe in the landing gear of an airliner.

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CHAPTER I

INTRODUCTION

Poverty eradication and development is a prominent feature of the foreign policy agendas of most of the developed world. Foreign assistance has taken a plethora of forms since its inception in the 1940s, and enjoyed varying degrees of success. With much of the modern literature touting empirical evidence denouncing the capability of foreign assistance to positively impact the economic condition of underdeveloped countries, it is clear that aid effectiveness must be measured beyond aggregate economic variables such as gross national product or per capita income. The recent transition from an economic to a human development focused examination of the role of foreign aid has incited further investigation into whether human welfare can be improved through development assistance. Additionally, the question of whether targeted foreign aid flows designed to address specific human development goals can be a successful development tool has been left unanswered. This thesis is a cross-national analysis of Sub-Saharan Africa testing the efficacy of foreign aid flows on human welfare as measured by health outcomes.

The last half century gave rise to over a dozen developing nations whose economic expansion surpassed the growth rates of many industrialized economies. More

This thesis follows the style of *Journal of Developing Societies*.

specifically, the economic growth rates of Brazil, Russia, China, and India are projected to exceed the world's developed countries by 2050. The same fifty years witnessed a majority of aid-dependent Sub-Saharan Africa suffer from economic stagnation and in some cases even regression. From a human development standpoint, the 2005 Human Development Report revealed Sub-Saharan Africa remains the only region to languish below .05 on the human development indicators (HDR 2005) suggesting human welfare in Sub-Saharan Africa has not experienced demonstrable improvements since the mid 1980s. Not surprisingly, Sub-Saharan Africa is home to all of the ten poorest countries on the globe. Many experts predict the Sub-Saharan region as least likely to achieve the Millennium Development Goals set in 2000 at the United Nations, yet much of the literature on aid effectiveness has neglected to focus on Sub-Saharan Africa specifically. Instead, much of the cross national data models the region with scale dummies producing inconsistent results (Quartey 2005).

The following analysis addresses the fundamental question of whether foreign aid is effective for accomplishing the development goals for which it is intended. The purpose of this study is to provide insight and offer a better understanding of the role of foreign aid in improving human welfare in the region and enhance the human development strategy in Sub-Saharan Africa which, is hindered by “a lack of understanding of the fuller dimensions of poverty” (Hanley 2002). This cross-national analysis will empirically test the efficacy of health sector-specific foreign aid flows to improve health development in three specific areas: nominal impact of sector-specific aid, government

efficiency in delivering health services, and sustainability. Nominal impact is the area of which a majority of the existing literature has focused. While the actual results of foreign aid is important and should be examined, there are other dimensions to the effect of foreign aid on recipient countries that should not be neglected. One such dimension is efficiency. Ideally, aid assistance designated for health improvements should help the recipient country move towards developing an efficient system of health related service delivery. Another facet of aid impact that will be explored in this study is sustainability, or aid's ability to help the recipient country eventually become self reliant.

The findings may suggest targeted aid should be more vigorously pursued as the ideal tool for human development in Sub-Saharan Africa, or that aid holds no promise for efficiency and self sufficiency on the part of recipient countries. The following section explores the literature discussing the efficacy of foreign aid.

Literature review

A significant portion of the literature on the effectiveness of aid has focused on large scale macroeconomic variables such as economic growth, savings, and public investment. From the early 1960s or so, the empirical literature extended its focus to the effect of foreign aid exclusively on economic growth. Studies such as Rahman (1968) and Weisskopf (1972) reported a negative relationship between aid and savings as well as aid and economic growth. The two-gap model by Chenery and Strout (1966) provided the foundation for a significant amount of research on aid. This model described aid as a

filler for the gap between investment needs and domestic savings of underdeveloped countries which would then result in higher growth rates. Later empirical evidence supports the supposition that there was no significant correlation between aid and GNP growth rates in developing countries (Hadjimichael and Ghura 1995; Hansen and Tarp, 2001; Mosley et al., 2004). The findings suggested that because aid is fungible it often led to unproductive government expenditure as well as an adverse effect on the domestic private sector through relative price changes. Dambisa Moyo's investigation into the efficacy of foreign aid on economic development revealed that the current real per capita income in Africa is lower than it was in the 1970s despite the billions of dollars in foreign aid that has been poured into the continent (Moyo 2009).

From the empirical and ideological literature debating the efficacy of aid assistance emerge two conflicting hypotheses (Williamson 2004). The first, the public interest argument, maintains that foreign aid has been and will continue to be successful catalyst for development (Sen 1999; Sachs 2005). The public choice hypothesis argues foreign aid is an ineffectual means for promoting development and hinders further growth (Sen 1999; Sachs 2005). The public choice and public interest hypotheses provide very different projections regarding the role of foreign aid as a tool for enhancing human development. The public choice hypothesis is supported by a majority of the modern empirical research on aid effectiveness (Filmer and Pritchett 1999; Svensson 1999; Filmer, Hammer, and Pritchett 2000; Knack 2001; Brumm 2003; Bräutigam and Knack 2004; Economides, Kaiyvitis. and Philippopoulos 2004; Djankov, Montalvo, and

Reynal; Querol 2005; Hartford and Klein 2005; and Heckelman and Knack 2005). The preceding studies analyze the efficacy of foreign aid on improving aggregate measures of economic development and conclude no significant correlation.

Since the adoption of the Millennium Development Goals by the United Nations in 2000 designed to “free our fellow men, women and children from the abject and dehumanizing conditions of extreme poverty,” the donor community has acknowledged that human development has replaced economic achievements as the primary objective of foreign assistance (United Nations Development Program 2005). This belief is reflected in the recent aid flow statistics. Aid earmarked to the health sector doubled in the five years following the shift of focus to human development (OECD 2007). Public expenditures funded by foreign aid was shown to improve human welfare in a 2005 study by Gomanee, Girma, and Morrissey. Fielding et al. (2006) proposed that examining macroeconomic measures of economic growth, such as GNP increases, alone were insufficient for determining the effectiveness of foreign assistance by investigating the effect of aid on various components of human development, including health, education, and fertility. The authors concluded that several development outcomes are significantly impacted by foreign aid. Asiama and Quartey’s theoretical modeling of the effect of aid on growth and welfare indicated disaggregated, sector-specific aid provided a notable and positive impact on improving human development while aggregate bilateral aid did not produce a significant impact on human development indicators (Asiama and Quartey 2009).

The determination of the efficacy of aid cannot be based solely on macroeconomic outcomes such as GNP or per capita income because these measures represent just one of the means to accomplishing improved human welfare. The current focus to human from economic development as the primary goal and means of evaluating foreign aid makes an investigation into targeted foreign aid for improved health conditions in Sub-Saharan Africa appropriate. Focusing aid on improving health is another important way to achieve development and enhancing conditions for individuals in Sub-Saharan Africa. Adopting Quartey's (2009) sector-specific theory that asserts foreign aid is most effective when administered through sector-specific channels for narrowly outlined purposes. Clearly, the nominal impact of aid has been the subject of a great deal of scholarly work. This article aspires to expand on this narrow view of aid impact and demonstrate the multifaceted relationship between health outcomes and the receipt of health sector-specific foreign assistance.

Previous literature suggests foreign aid contributions to the health sector results in improved nominal health conditions, but the other dimensions of the effects of aid yet to be explored. I hypothesize that as foreign aid contributions to the health sector increase, human health development is positively affected. Over time, I anticipate countries that receive larger amounts of foreign aid earmarked for the health sector to demonstrate improved health conditions. This article is a Sub-Saharan Africa focused addition to the existing discourse on the efficacy of foreign aid on human development.

CHAPTER II

METHOD

The theory guiding this study is that the impact of aid is multifaceted and should be examined accordingly. Focusing on the nominal impact of aid could result in missing the gains realized by countries in terms of efficiency and self sustainability. These gains are fundamental to the purpose and mission of aid which is to push underdeveloped countries further toward wealth and, by extension, independence. Three narratives emerge when examining the multidimensional impact of aid, all of which will be empirically tested in this paper. The first is the most commonly analyzed, nominal impact. As indicated in the discussion of the literature, nominal impact of aid on health outcomes has been exhaustively studied for correlation with conflicting results. For the sake of completeness, nominal impact will also be tested in this study and will serve as the first model. More specifically, health impact will be measured in relation to the amount of aid received over the time series.

The second model analyzes aid's impact on the efficiency of governments to deliver effective health services. This model examines whether foreign aid proportionately decreases the nominal health problem relative to the total health policy commitment within the recipient country over a specified time. Efficiency is quantified as a ratio between health outcome and total government expenditure on health per capita. This ratio is measured against the amount of aid a country received. A positive result would

mean the health outcome per government expenditure on health is improving relative to the amount of aid given. I hypothesize that as more health sector specific aid enters the country, the more efficiently government expenditure will improve health outcomes.

The third model focuses on the impact of aid in terms of the issue of sustainability. This is an important facet of foreign aid because the fundamental purpose of aid is to help push a country towards improved development, welfare, and eventual self sufficiency. This model analyzes the efficacy of foreign aid to accomplish these aims by testing whether it has a measurable effect on health impact per unit of GDP. Essentially, we ask in this paper if foreign aid offers the possibility of effectively ending the need for aid. We refer to this as sustainability because we are measuring whether foreign aid can help countries become eventually self reliant. I hypothesize that foreign aid proportionately decreases the nominal health problem relative to the total economic capacity within the recipient country over a specified time.

Empirical model

This study will focus on 41 countries comprising Sub-Saharan Africa. These countries are outlined in Table 3 found in Appendix A. Africa remains the most politically vulnerable and controversial region in the world and is also the largest recipient of foreign assistance. The data will include the nine years between 2000 and 2008 because they possess the most recent and comprehensive data available. The time series in this study will be divided in two groups, 2000-2004 (time one) and 2005-2008 (time two).

For our independent variable we will use the average annual value of health sector specific aid (referred to as aid for the purposes of this paper) given to each country in time one. The primary nonaid variable is maternal mortality rate (referred throughout as health outcome) in time two is also averaged. This rationale underpinning this research design is its ability to allow the study to measure the tangible effects of aid on health outcomes.

Despite any correlations uncovered between aid and gains in nominal impact, government efficiency, or national sustainability, exogenous variables may have an independent effect. To remedy the potential collinear effects, the empirical study incorporates the following control variables: political institutions, economic institutions, measles immunizations, gross domestic product (GDP), and number of physicians. The latter two variables are reliant on data collected from the 2009 World Development Indicators. Gross national product is reported per capita based on purchasing power parity in 2000 international dollars. We expect GNP to produce increases in health conditions because it is an overarching measure of economic development. The quantity of physicians in a country should also positively affect a population's health.

The literature suggests human health development may be altered by the institutional climate in a given country. Studies have demonstrated that increases in economic and political freedom positively impact development (Gwartney, Lawson, and Holcombe 1999; Acemoglu, Johnson, and Robinson 2001, 2002). The political and economic

environment will be controlled with the use of the Freedom House and Fraser freedom indices. Freedom House determines political freedom using a measure comprised of average scores from an index of civil and political liberties. Economic institutions are measured by the Fraser freedom index that gauges the level of personal choice over collective choice, voluntary exchange, the freedom to compete, and security of private property allowed by the country (Gwartney and Lawson 2005).

As noted about the dependent variables in the study, health of each country over the timeframe will be measured by the maternal mortality rates (MMR) derived from the World Bank's World Development Indicators (World Bank 2009). Two factors govern this decision. The first is data availability limitations and the second is the selected variables' ability to demonstrate a broad characterization of the overall health conditions of a population. Few other variables with strong ties to the widespread health of the country were as comprehensive as MMR, which severely limited the measures that could be employed in the study. MMR is also useful in this study considering the time frame we are examining because it is an outcome whose results may be quickly demonstrated in the data. For example, improvements in life expectancy or death rate would take several decades to reflect in the data. Given the short span of time examined, MMR provides best measure of change in health over time. MMR is also a more comprehensive gauge of population health because deaths of mothers during childbearing age have such a far reaching and detrimental effect on the population as a whole.

The economic data and health indicators are primarily gathered from the World Bank databases, World Development Indicators Africa Development Indicators. The World Bank is an organization committed to facilitating international trade and reduction of poverty worldwide. It is a source of financial and technical support to underdeveloped nations and they collect data on the donor and recipient countries. Table 1 outlines the variable operationalization for the variables in the empirical study.

Table 1. Variable Operationalization

Concepts	Measures	Source
Foreign aid earmarked for health sector development	Total dollars given to Sub-Saharan Africa for the health sector	Organization for Economic Co-Operation and Development provides the Creditor's Reporting System database
Immunizations (Measles)	Percent of children between 12 – 23 months that receive the vaccine before turning one	World Development Indicators 2009
Gross Domestic Product	GDP on per capita basis based on purchasing power parity in constant 2000 international dollars	World Development Indicators 2009
Number of Physicians	Number of physicians per 1000 of population in each country	World Development Indicators 2009
Institutions (Political Freedom)	Index scaled from 1 to 7 with 7 representing the lowest level of freedom	Freedom House 2007
Institutions (Economic Freedom)	Index scaled from 1 to 10 with 1 representing the lowest level of freedom	Fraser Freedom Index

Sources: Africa Development Indicators (2010), World Development Indicators (2010)

CHAPTER III

RESULTS

Nominal health outcomes

The nominal health impact of foreign aid results as shown in Table 2 suggests that total bilateral aid does not impact nominal health outcomes as measured by this study. The amount of foreign aid is not significantly correlated with health outcomes. This is a particularly troubling finding considering the preeminent belief that the fundamental justification for large scale aid transfers lie in its inherent ability to improve the material well being of the citizens in recipient countries. Figure 1 is illustrative of these findings. As this graph demonstrates, the amount of residual error leads to an inability of the model to substantiate claims for the correlation between aid and health impact.

This first model produced significantly correlated results between two control variables, the number of physicians per 1,000 of the population and the percentage children between the ages of 12-23 months with the measles vaccinations, and health impact. The other variables, including level of democracy and the level of economic freedom showed no statistically significant relationship with the nominal health outcomes of the countries tested.

Efficiency

The second model, outlined in Table 3, investigates the ability of foreign aid to positively impact the efficiency with which governments deliver effective health care services. Health outcomes relative to the amount of GDP that is spent on health service related expenditures were compared to the amount of aid received. The model refutes the presupposition that more aid increases a given country's ability to more efficiently provide health care for its citizens. The results indicate that aid does not have a significant positive relationship with efficiency, and in addition has the opposite effect. In this model, as shown in Figure 2, aid negatively impacted health outcomes. This is demonstrated by a downward sloping trend in Figure 2.

Apart from aid, two variables in this model produced a statistically significant correlation: level of democracy, and GDP. Similar to the case for aid, the level of democracy in a country is negatively correlated with health outcome. GDP is also related with health outcome relative to government expenditure per capita on health. As we will discuss further in the next section, GDP positively impacts the health outcome in a country. Both this and the following models produced findings that support the claim that in countries with higher GDP, there are also more favorable health outcomes.

Sustainability

The final model analyzed whether aid positively impacted a country's prospects for eventual independence. This was the first model to suggest a positive relationship

between aid and health outcome. This model is essentially testing whether more aid transfers to a country translates to a greater health impact relative to that country's GDP. The results of this test suggest aid positively impacts sustainability of a country by producing fewer units of maternal deaths per 100,000 births per GDP. As aid increases, deaths relative to GDP decline while efficiency and nominal outcomes are not helped and may be adversely affected. Indeed, aid may offer the promise of ending dependency because as deaths per GDP decline the countries may be able to sustain themselves. It would appear that countries receiving more aid have less maternal deaths per GDP. One possible reason for this finding is aid dollars chase countries which have a greater likelihood of being able to manage dollars. This phenomenon is comparable to health insurance companies' unwillingness to insure sick patients. As demonstrated in Figure 3, the countries that are actually experiencing an impact on health outcomes from aid are those countries with larger economies.

The only control variable tested in the third model that produced statistically significant results was the percentage of children who received measles immunizations. One possible reason for this is the better organizational ability derived from resources available in larger economies to provide immunizations for children. The other control variables, physicians, level of democracy, and level of economic freedom, were not significantly correlated. GDP was not tested as a control variable as in the previous two models because GDP was factored in the dependent variable in this analysis as health outcome was measured relative to GDP.

Limitations

The recurring problem encountered in the course of the study is a debilitating lack of comprehensive data. Many factor contributed to this problem. The fact that forty eight independent nations are included posed barriers to collecting complete data on most of the variables. Oftentimes, there were figures for each year in the series for some countries and not others. In order to accurately test the hypothesis, it is vital to be able to examine the same factors for every country over the entire time frame. Countries missing data was not the only problem. Certain variables were only taken on a five year basis, which provided only three figures for my originally- fifteen year study. Other variables were not recorded in certain years which left gaping holes in my dataset. To remedy this situation, I elected to shorten my study from the fifteen years between 1994 and 2008 to the nine years between 2000 and 2008 because recent years have produced the most consistent and complete datasets. Locating variables that are recorded and published for every country in the sample for all the years in the series and still provide reliable insight into health indicators was a challenge that caused an unwanted delay in my hypotheses testing.

Furthermore, the sample posed problems when attempting to run accurate statistical analysis. Due to the small sample size and short time span over which the countries were being observed, the assumption of homoscedasticity was violated. This necessitated the employment of natural logs in order to create a more valid data set. Since the number of countries in the study is finite, using natural logs allowed the data to

be expanded over several hypothetical years and provide a better representation of patterns in the data.

Table 2. Multivariate Analysis of Multidimensional Effect of Foreign Aid

Independent Variables (Sample N=41)	Model 1 Nominal Impact		Model 2 Efficiency		Model 3 Sustainability	
	b (stand ard error)	β (significa nce of β)	b (standa rd error)	β (significa nce of β)	b (standa rd error)	β (significance of β)
ODA Assistance	-.028 (.090)	-.052 (.760)	.706 (.216)	.522 (.002)*	-.772 (.144)	-.590 (.000)*
Immunizations (Measles)	-.729 (.282)	.282 (.014)*	-1.115 (.676)	-.180 (.108)	.032 (.628)	.005 (.960)
Gross Domestic Product	.095 (.079)	.205 (.238)	-.560 (.190)	-.475 (.006)*		
Number of Physicians	-.408 (.104)	-.646 (.000)*	-.377 (.250)	-.236 (.140)	.171 (-1.238)	-.802 (.000)*
Institutions (Political Freedom)	.080 (.043)	.222 (.067)	.235 (.102)	.256 (.027)*	.039 (.096)	.043 (.690)
Institutions (Economic Freedom)	-.012 .026	-.053 .633	.037 (.067)	.062 (.553)	-.052 (.057)	-.091 (.371)

* $p \leq .05$

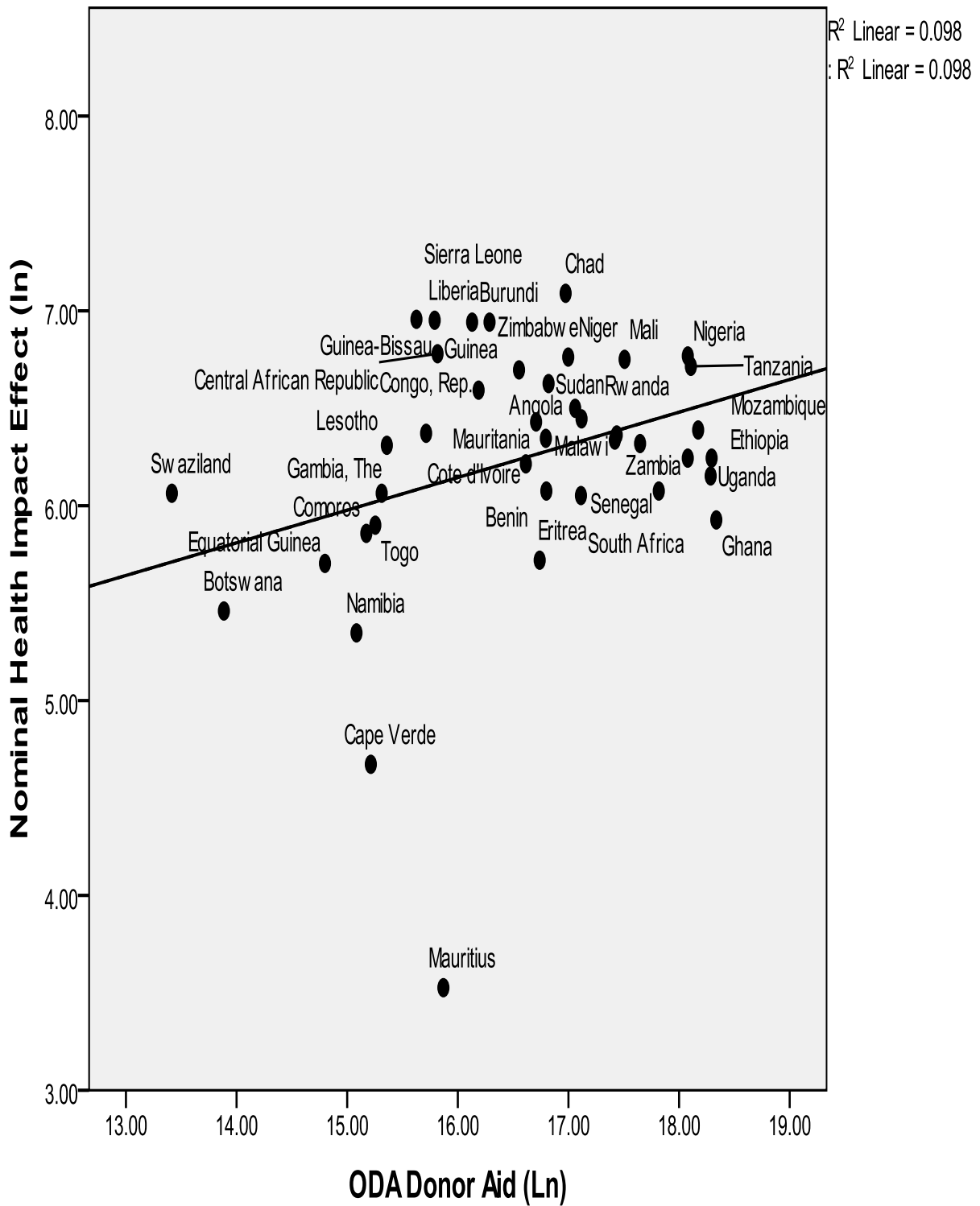
Figure 1**Nominal Health Impact Effect of ODA Commitment**

Figure 2

Efficient Health Impact Effect of ODA Commitment

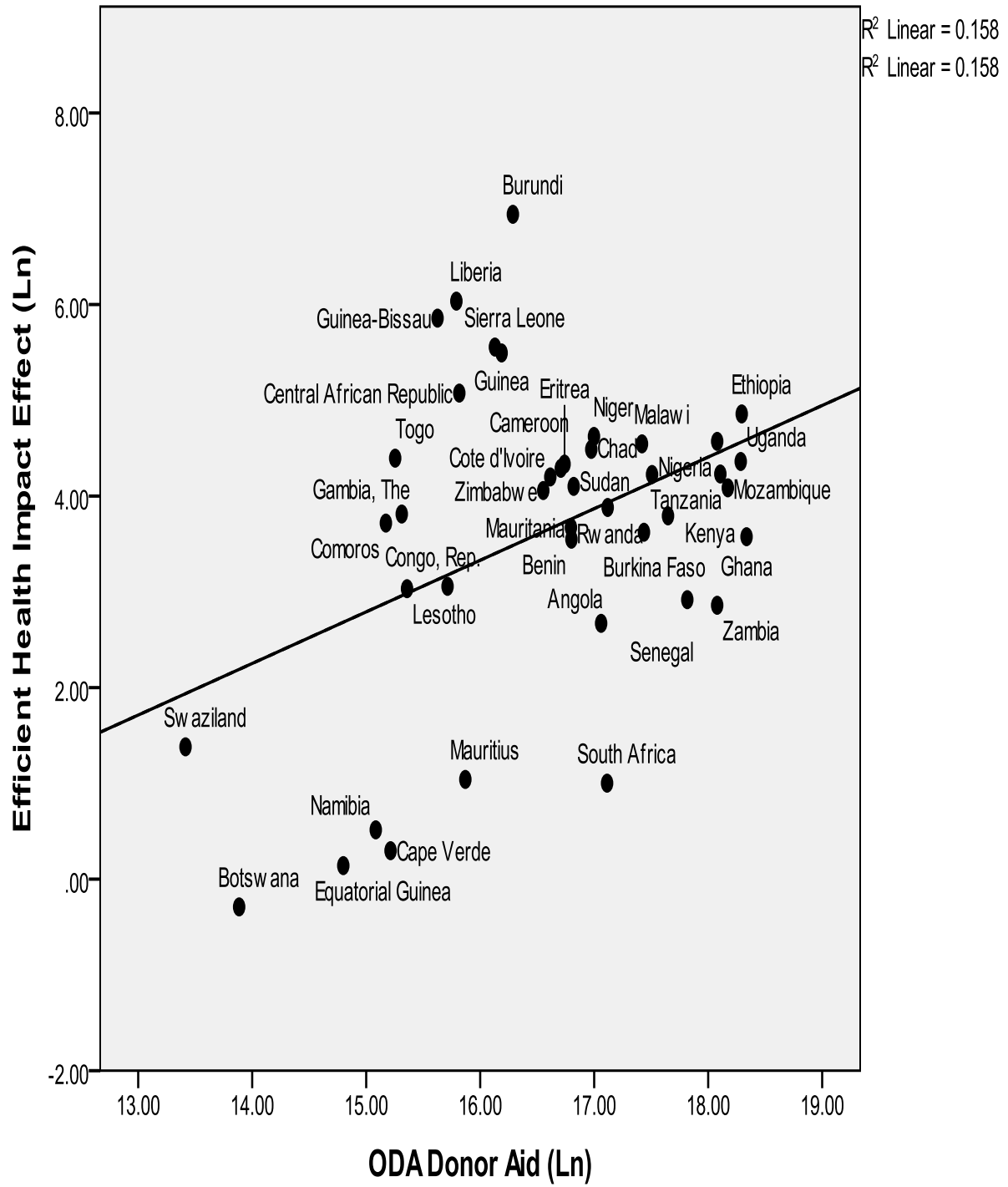
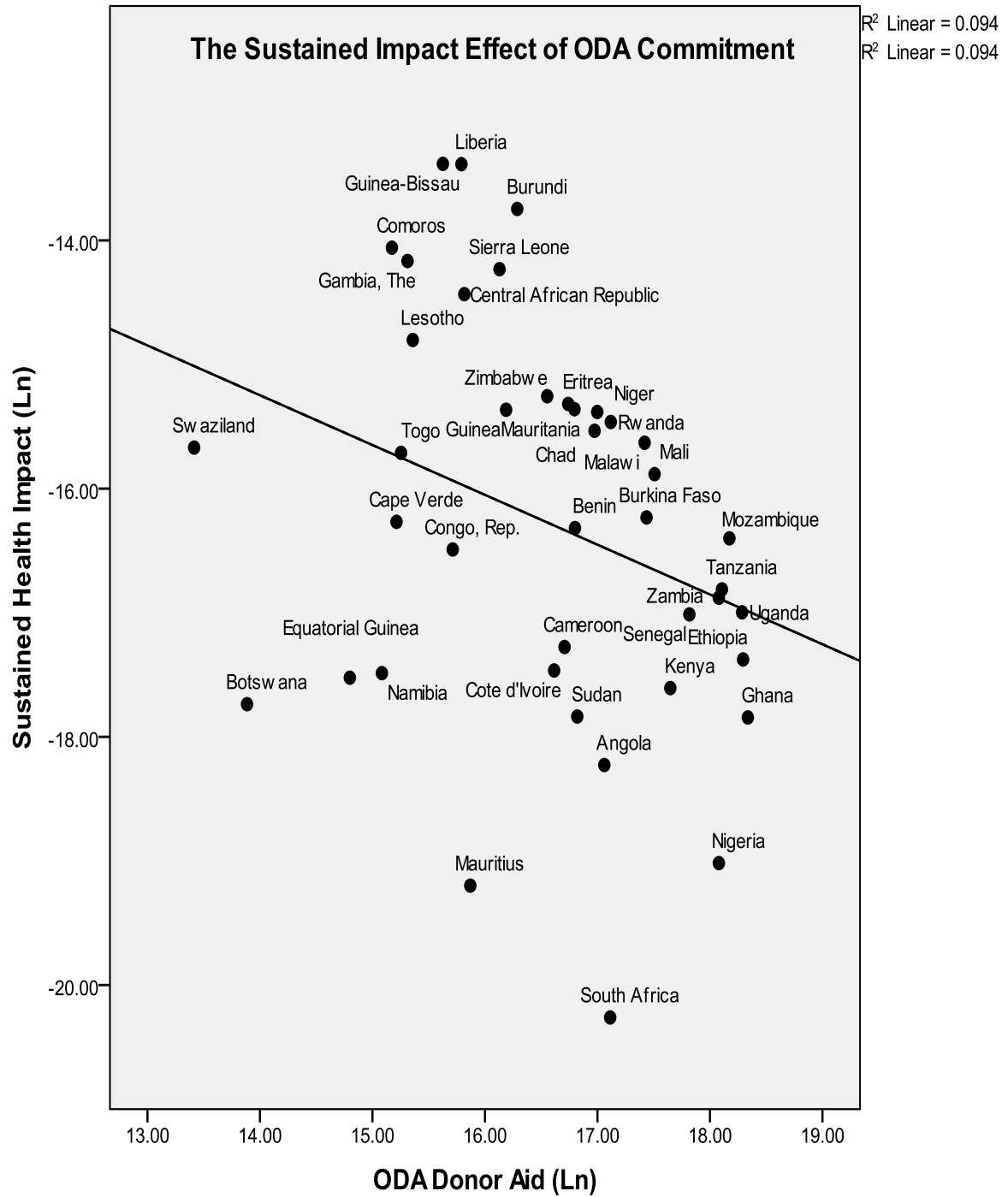


Figure 3



CHAPTER IV

CONCLUSION

Conclusion

This paper examined three competing ways of conceiving the impact of foreign aid. Examined individually, these narratives offer merely an incomplete observation of the issue. A holistic approach, as taken in this study, provides a more comprehensive view of the efficacy of foreign aid to accomplish the goals set forth. The results of the traditional narrative, more money equating to better health outcomes, dealt a blow to proponents of foreign aid because a basic correlation between aid and impact was not discovered. Furthermore, the second model suggested foreign aid has a depressing affect on health outcomes in terms of government efficiency. Critics of aid may cite these two findings as evidence that aid is a waste of resources and even detrimental to recipient countries. The sustainability model suggests aid can enhance the capacity of a country to reduce MMR and improve health conditions. The implication of this finding is as the resource pool of a country grows, its prospects for independence from foreign aid increases as well.

Large scale transfers of foreign aid producing a deleterious effect or no effect at all on health outcome is indicative of the need for a reevaluation of the system currently in place. The answer is not to cease financial inflows, but rather exploring options that allow these resources to be more efficiently harnessed in order to produce the material

gains they are meant to deliver. In order to understand how countries in Sub-Saharan Africa can better employ foreign aid resources, their current sub-national spending must be examined to capture vital information lost over a large scale comparative study such as this.

This research is a cross national study that analyzed the dimensions of the impact of foreign aid on health outcomes in Sub-Saharan Africa. The examination of alternative ways of conceiving the impact of aid on measures of health produced surprising results. One facet of foreign aid I studied is its propensity to enhance the recipient country's efficiency in the delivery of health-improving services by comparing health outcomes with the government expenditure on health per capita. We hypothesized that the nominal measure of health outcomes relative to government expenditure on health per capita would be positively impacted by increases in the amount of foreign aid. Instead, I found a statistically significant negative relationship between aid and health outcomes relative to government expenditure. The results suggested more aid negatively impacts health outcomes in recipient countries due to inefficient health service delivery. Indeed, this finding is alarming. It also demands a deeper exploration into the governmental economic decisions of aid recipient countries at a sub-national level.

In order to help underdeveloped countries increase their efficiency, the implications of economic decisions of their leaders must be further investigated. I would like the opportunity to build upon my previous research by examining the tangible implications

of the budgetary decisions at the sub-national level. An understanding of the economic decisions of national governments and how those decisions tangibly affect the lives of their citizens is vital for the United States and other donor countries in order to formulate effective poverty mitigation and human development policies.

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APPENDIX A

Table 3. Sample Data: Aid and Health Impact (Original and Log-Transformed Values)

Country	ODA Aid	ODA Aid (Ln)	Nominal Impact	Nominal Impact (Ln)	Efficiency Impact	Efficiency Impact (Ln)	Sustainability Impact	Sustainability Impact (Ln)
Angola	\$25,672,292	17.06	665	6.5	14.46	2.67	0.00012	-18.23
Benin	\$19,781,632	16.8	435	6.08	34.8	3.55	0.00082	-16.32
Botswana	\$1,072,402	13.89	235	5.46	0.75	-0.29	0.0002	-17.74
Burkina Faso	\$37,380,064	17.44	580	6.36	37.42	3.62	0.00089	-16.23
Burundi	\$11,837,152	16.29	1035	6.94	1035	6.94	0.01072	-13.75
Cameroon	\$18,027,032	16.71	620	6.43	72.94	4.29	0.00031	-17.28
Cape Verde	\$4,047,705	15.21	107	4.67	1.35	0.3	0.00086	-16.27
Central African Republic	\$7,397,581	15.82	880	6.78	160	5.08	0.00539	-14.43
Chad	\$23,545,718	16.97	1200	7.09	88.89	4.49	0.00179	-15.53
Comoros	\$3,885,289	15.17	350	5.86	41.18	3.72	0.00784	-14.06
Congo, Rep.	\$6,672,880	15.71	585	6.37	21.27	3.06	0.00069	-16.49
Cote d'Ivoire	\$16,435,529	16.61	500	6.21	66.67	4.2	0.00026	-17.47
Equatorial Guinea	\$2,673,822	14.8	300	5.7	1.15	0.14	0.00025	-17.52
Eritrea	\$18,624,180	16.74	305	5.72	76.25	4.33	0.00223	-15.32
Ethiopia	\$88,131,552	18.29	515	6.24	128.75	4.86	0.00028	-17.38
Gambia, The	\$4,465,457	15.31	430	6.06	45.26	3.81	0.00704	-14.17

Ghana	\$91,942,120	18.34	375	5.93	35.71	3.58	0.00018	-17.84
Guinea	\$10,723,042	16.19	730	6.59	243.33	5.49	0.00212	-15.36
Guinea-Bissau	\$6,112,706	15.63	1050	6.96	350	5.86	0.01541	-13.38
Kenya	\$46,157,924	17.65	555	6.32	44.4	3.79	0.00023	-17.61
Lesotho	\$4,677,599	15.36	550	6.31	20.75	3.03	0.00373	-14.8
Liberia	\$7,210,392	15.79	1045	6.95	418	6.04	0.01537	-13.39
Malawi	\$36,739,608	17.42	565	6.34	94.17	4.55	0.00163	-15.63
Mali	\$40,125,868	17.51	855	6.75	68.4	4.23	0.00126	-15.88
Mauritania	\$19,692,890	16.8	570	6.35	39.31	3.67	0.00213	-15.36
Mauritius	\$7,801,117	15.87	34	3.53	2.83	1.04	0.00005	-19.2
Mozambique	\$78,029,184	18.17	595	6.39	59.5	4.09	0.00075	-16.4
Namibia	\$3,555,761	15.08	210	5.35	1.67	0.51	0.00025	-17.49
Niger	\$24,109,854	17	865	6.76	101.76	4.62	0.00209	-15.38
Nigeria	\$71,066,472	18.08	870	6.77	96.67	4.57	0.00006	-19.02
Rwanda	\$27,191,048	17.12	630	6.45	48.46	3.88	0.00192	-15.46
Senegal	\$54,671,172	17.82	435	6.08	18.51	2.92	0.00041	-17.01
Sierra Leone	\$10,111,944	16.13	1035	6.94	258.75	5.56	0.00659	-14.23
South Africa	\$27,049,596	17.11	425	6.05	2.72	1	0.00002	-20.26
Sudan	\$20,181,260	16.82	755	6.63	60.4	4.1	0.00018	-17.84
Swaziland	\$669,979	13.42	430	6.06	3.98	1.38	0.00157	-15.67
Tanzania	\$73,046,080	18.11	825	6.72	68.75	4.23	0.0005	-16.81
Togo	\$4,215,103	15.25	365	5.9	81.11	4.4	0.0015	-15.71

Uganda	\$87,359,760	18.29	470	6.15	78.33	4.36	0.00042	-17
Zambia	\$71,047,960	18.08	515	6.24	17.46	2.86	0.00047	-16.88
Zimbabwe	\$15,453,181	16.55	810	6.7	57.86	4.06	0.00237	-15.26

Sources: Africa Development Indicators (2010), World Development Indicators (2010)

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