Evaluation of the impact of Social aid on Development in Sub-Saharan African countries (1994-2010)

By

JORI Daniel

THESIS

Submitted to

KDI School of Public Policy and Management

in partial fulfilment of the requirements

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Abstract

This thesis evaluated the impact of social aid on national development of Sub-Saharan African countries and give policy recommendations on the kinds of aid that donors should provide much in order to stimulate development in those countries. The study used a data covering a panel of 40 countries in the region over the period between 1994 and 2010. The study finds that social aid had a significant effect on long term development in the Sub Saharan African region. This effect was possibly by the lasting effect of social services such as education and health in people's productivity. The results however, have failed to prove that social aid only works where domestic policies are good. However, this finding maybe a result of the bias data and the narrowness of the policy index and should not be relied on. The analysis has strengthened an argument made by Reddy and Minou (2009) that social aid is more useful in promoting long term national development. However, there is no strong evidence that social aid has positive impact on HDI and it is difficult to say that social aid is more effective than infrastructure aid.

1. INTRODUCTION

1.1 Purpose

The purpose of this thesis is to investigate the impact of social aid on national development of Sub-Saharan African countries over the period between 1994 and 2010 and give policy recommendations on the kinds of aid that donors should provide much in order to stimulate development in those countries. The study further sought to investigate the impact of domestic policies on the effectiveness of social aid's contribution to national development.

1.2 Statement of Problem

Sub-Saharan Africa, being the poorest region in the world has attracted substantial amounts of foreign aid over the years. Official Aid trends to the region, was USD853 million over 1990-99, between 2000-2009, the region received USD 1709 million and between 2010 to 2013 the figure was standing at $2552 (*OECD Report, 2013*). However, challenges such as extreme poverty and poor standard of living are still prevailing in Sub-Saharan region. More than 1.2 billion people are living on a $1 a day and about 218 billion people on a paltry $2. In the same vein, over 854 million adults cannot read and write of which 543 million of them are women (Human Development report, 2012). Furthermore, more aid was being directed towards the social sector over the same period as compared to other sectors. This is shown on table 1 below:

Table 1.

ODA to Sub-Saharan Africa against North of Sahara by sector in USD Millions (1994-2013)

	Social aid	Infrastructure aid	Production aid	Humanitarian aid
North of Sahara	80	25	7	50
Sub-Saharan	1151	369	792	473

Source: OECD Report, 2013

It is against this background that compelled one to investigate that aid, if targeted towards the appropriate sectors would promote development of the nation. The picture here leaves one wondering if aid provided to this region was actually working. This is contrary to the World Bank and other global institutions that are trying to put diverse strategies, and mobilize more foreign aid to assist the developing world grow their economies. Sub-Saharan African countries has been getting foreign capital inflows and compared to other developing regions, large volumes of aid have been directed towards to this region to promote development through investment in human and physical capital. Furthermore, foreign assistance seems to be increasingly the critical portion of government financing for many developing countries.

Recent studies found conflicting results regarding the effect of aid on economic growth. For example, it has been noted that three different views emerged in the aid literature; 1) one that argues that aid is actually promote economic growth which in turn stimulate development. 2) that argues that aid is only effective if the receiving country has good and sound policies. 3) the last view established that aid has no effect on neither growth nor national development. But of these three divergent views, *none of them had attempted to test the impact of social aid on development.* However, the differences can be a result of varying data sets, samples and other issues. On substance, majority studies look at the relationship between total aid and growth, even though large portions of aid are not primarily directed at growth. For example, food and humanitarian aid are aimed primarily at supporting consumption, not growth, as is the provision of medicines, bed nets, and school books. Aid to support democracy or judicial reform is not primarily aimed at stimulating growth. These important aid-financed activities help improve recipient welfare by supporting basic consumption needs, developing political institutions, and reinforcing health and education, though they are likely to stimulate development on a long run. Further studies are needed to investigate the matter with a different approach. The lack of consensus on the aid effectiveness on economic growth, created room for researchers to try to disintegrate it into sectoral form and test its significance to national development.

Subsequently, the current study need to investigate the impact of social aid per se, which is aid directed to health and educational sectors on development in the SSACs to fill this chiasm. This would be of maximum benefit to the recipient and donor states since it will be clear on which sector to prioritize aid money. The study results will establish evidence that will enhance development efforts in the SSACs as donors will know where best to allocate aid resources. If the result proves a significant positive relationship between social aid and national development, donors will provide more aid to those sectors. But if the result showed a negative association, they will be a need to redevise the allocation criteria. We further come up with models that emphasize a particular region and sector instead of generalizing the findings from studies done in other regions or studies covering a wide range of countries with different economic structures and challenges. This study focuses only SSACs which have generally similar economic features. The sample contains a panel of 40 countries over a 16-year time span, from 1994 to 2010. Specifically, the study attempts to answer the following research questions.

1.3 Research Questions

1) Does social aid promote development of Sub-Saharan African countries?

2) Is the impact of social aid on development dependent on domestic policies of the receiving country?

3) What are the problems and policy implications in the relationship between foreign aid and development of Sub-Saharan African countries?

1.4 Hypotheses and assumptions to be tested:

Most Sub-Saharan African countries (SSAC) face budget constraints to finance development, social aid inflows could cushion this deficit on education and health expenditure and promote national development. According to Harrod–Domar model the prime mover to development is investments (Ghatak 2003). However, capital is needed to generate investments which will promote national development. Since SSAC's domestic savings is not enough to stimulate development, foreign official aid from donor countries is needed to fill this deficit. It is argued that investment in education and heath,

promote reliable development, though the impact is likely to take decades. In this view, the hypothesis that ***social aid to sub Saharan Africa has a positive effect on national development and that its impact on development is stronger in good policy and institutional conditions will be tested, using ordinary least squares regression. Secondary data from World back indicators and OECD websites will be used in this thesis.*** Therefore, the hypothesis of this study is separated into two.

Hypothesis (1), *Social aid is hypothesized to have a positive impact on long term development.*

In this view, social aid can be used to meet basic human needs such as food, shelter, education, and health which in turn accelerate development. The assumption here is that though in a long run, development is a result of investment in health and education, which in turn promote high standard of living, low mortality rate, high literacy rate and more productive labour force. Development is not merely high GDP, but the increase in basic human capabilities such as the ability to lead long and healthy lives, to be educated, and to have an acceptable standard of living, and to be able to participate in community life (Human Development Report 2013). However, opponents of foreign aid argue that foreign aid is not used for development but is simply diverted into consumption, and financing the military used to oppress citizens instead of investment (Isham & Kaufmann, 1999). This argument leads to our second hypothesis.

Hypothesis (2), *Social aid promotes long term development under good domestic policies*

The Coordination theorists argue that the government can coordinate the economy to promote development. However, in 1995, World Bank researchers Isham, and colleagues, the supporters of this view, found that World Bank projects had higher rates of returns in countries with stronger civil liberties (Burnside & Dollar, 2000) Thereafter, Burnside and Dollar in their influential study concluded that aid stimulated growth in countries with good policies, but not otherwise. The assumption is that the effectiveness of foreign aid on development is determined by the quality of governance, policies and institutions of recipient countries. This is due to a relationship between democracy and project outcomes; notably, developmental programs are tending to be more successful in democratic societies compared to autocratic governments (Dollar & Levin, 2003).

1.5 Organization of Study

The rest of this study is organized into four sections. Section 2 deals with the literature review, that is, the main conceptual and theoretical views; Section 3 discusses the research methodology. It focuses on the model specification, data collection methods and analysis procedures. Section 4 examines the impact of social development aid on national development, analysis and discussion of results. Finally, section 5 summarise the findings, conclusions and policy recommendations of the study

2. LITERATURE REVIEW

This section will provide an overview of the empirical evidence from a number of studies that examined the effectiveness of foreign aid on development. The first part will review studies that examined the effectiveness of aggregated aid on either economic growth or poverty reduction. Thereafter, the shortfalls of these studies which lead to another category of studies that evaluated disaggregated aid effectiveness will be outlined. Since these studies were still using a bunched form of aid such as project aid, developmental versus non-developmental aid, short term effect versus long term effect aid as explanatory for development, there is a gap that need to be filled by further subdivide aid into smaller elements such as social aid, infrastructure aid and other specific sectors. The fact that different kinds of aid indeed have diverse effects on development, using aggregated aid as an explanatory variable for development may lead to flawed inferences.

2.1 Aggregated aid effectiveness

The body of literature that examined the effectiveness of total aid is broadly divided into three components as follows: aid is generally effective; aid is not effective and one that argues that aid is effective only under certain circumstances. These strands are elaborated below:

2.1.1 Aggregated Aid is effective

Many studies that investigated the effectiveness of aid on economic growth, poverty reduction and human development established that though aid does have varying effect everywhere, on average it has a positive impact on development in developing countries (Dollar and Kraay, 2002). The studies in this category include; Bhavnami (2005), Arndt, Jones and Tarp (2010a), Clemens, Radelet, Bhavnami and Bazzi (2012), Frot and Perrotta (2012), Julelius,

Moller and Tarp (2013) and Arndt and Jones (2015). This is against the prime purpose of social aid or simply, official development aid (ODA), to promote development in the receiving region (Ramiarison, 2010). Development is defined as the ability of a country to advance the lives of its citizens that is a combination of poverty reduction (Dollar & Kraay, 2002) and economic growth (Arndt, et al, 2010a). In this study, development is measured using the human development index (HDI). This is a complex instrument that integrates averages of the life expectancy index, the income index, and the education or knowledge index (Human Development Report, 2013).

Aid promotes long run productivity when foreign assistance is viewed as an exogenous transfer of capital to fund important goods and services such as human development and infrastructure in recipient countries (Bandyopadhyay, Lahiri & Younas, 2015). This was confirmed by Arndt, Jones and Tarp (2015) in the study assessing foreign aid's long-run contribution to growth and development in developing countries with due respect of possible endogeneity. These researchers used GDP per capita as a dependent variable as objective of development. Their result established that source of growth comes from physical and human capital, indicators of social welfare, poverty, mortality rate and measure of economic transformation such as agriculture variables. These results were a replication of Arndt et al (2010a) who had found a positive long run impact of aid on dependent variable real GDP growth as stated in Solow growth model (1956). Their study used Rajan and Subramanian (2008) data with some modifications in aid and corrections of OECD/DAC data interpretation on bilateral aid. In addition, Jubelius et al (2013) found that aid has a positive effect on development. Their study examined time series data on the effect of aid on development using dependent variable real GDP growth over a number of African countries. This was supported by Frot and Perrotta (2012) who emphasized the effectiveness of bilateral aid to make it work influential to growth.

2.1.2 Aggregated Aid is not effective

There are other conventional views that showed evidence that aid has a negative effect on economic growth, poverty reduction even without conditions (Boone, 1996; Easterly, 2003; 2004; Rajan & Sabramanian, 2008). Boone (1996) established evidence that aid finances consumption instead of investment that promotes growth using human development indicators as dependent variables such as mortality rates. His study examined 19 nations over a period from 1971 to 1990 to see the effect of aid on investment, consumption, and tested the well-being of those countries. This study blamed governments in developing countries for the ineffectiveness of aid in promoting development. This was supported by Djankov , et al (2006) who proved a negative relationship between aid and economic growth as a result of decreasing investment at the expense of increasing consumption. The research focused on the effect of aid loan and grants on real GDP growth. Results showed that private investment had a positive impact on growth.

A substantial number of studies supported the same argument, for instance Weisskop (1972) established evidence that inflow of foreign capital in form of aid had a significantly negative effect on domestic savings dependent variable. He used a sample of 44 underdeveloped nations and reached the conclusion that aid replaces domestic savings. This was further replicated in later studies that found no significant association between foreign aid and economic growth when private capital and domestic savings are considered (Mosley, 1987). In 2005 and 2007 respectively, Rajan and Subramanian found no positive impact between aid and economic growth in short term, mid-term and long term. Their explanation blamed aid for diminishing the quality of governance since the coming - in of aid may cause governments to cut down their taxes. As a result, aid will not achieve its objective.

2.1.3 Aggregated Aid is effective under some conditions

Some scholars argued that aid is effective in promoting growth only when recipient nations, donors, or types of aid met certain conditions. The major proponent in this area is the World Bank study (1998). This study argues that aid can only work under domestic conditions of the recipient countries which promote well absorption of that aid (Brautigam & Knack, 2004; Lee & Lee, 2013). It further states that those countries with sound economic management, makes aid a critical tool in promoting development through the reduction of poverty and enhancement of private investment. The other controversial study that has the same view was Burnside and Dollar (2000) study which investigated if aid is effective only when conditioned with good policies and institutions of the recipient country. Their result established that aid can only work if the nation has sound monetary, fiscal and trade policies. This conclusion had important policy implications in the study of aid and it influenced the selectivity of aid by many donor countries. In an effort to reaffirm their findings, Collar and Dollar (2002) modified their model by adding a wide measure of policy and included many nations. The results proved that aid works only where policies and institutions are sound. In 2004, Burnside and Dollar further endorsed their argument and reinstated that aid effectiveness is determined by the domestic policy environment. The other scholars who supported the conditionality of aid argued that aid works when the quality of aid provided by donors is untied or come in form of loans instead of grants. In addition, donors should encourage ownership or participation of recipient countries and limit reporting requirements as propounded by the principles of Paris declaration (Lee, 2014).

2.2 Criticism of Aggregated aid effectiveness

A critical weakness in the above studies is that the effects of aid on development are treated as similar. One contests this principle by questioning if aid is provided for a single

purpose. It is argued that these studies often fall in the same pit of failing to acknowledge the multi-purpose of aid such as humanitarian, whose drive in not to promote economic growth. Even though a focus on the impact of aggregate official development aid on macroeconomic growth is essential, one argues that it is not enough. There is a need to expand literature on the contribution of disaggregated aid and look into aid targeting specific sectors on national development (Bhavnani et al, 2000; Clemens & Gani, 2003; Reddy & Minoui, 2009). These scholars argued that not all aid is meant for development, with others aid intend to improve economic development, thus their aid is directed towards investment activities. This may have been the core cause of diverse findings in the literature of aid effectiveness. Therefore, following studies tried to examine the impact of dividing aid effectiveness; by type of operation such as program aid, project aid, and technical assistance. Other scholars that support the disaggregation of aid examined it by sectors and evaluate the long-term effect versus short term effect of aid on development (Clemens & Gani, 2003; Lohani, 2004; Clemens et al, 2012). These studies are reviewed in the following section.

2.3 The Effectiveness of Disaggregated aid

Despite large volumes of literature on aid effectiveness, it is argued that the conflicting findings of aid effects on growth result in "macro-micro paradox" (Reddy & Minoui, 2009). This is where aid had negative and sometimes neutral effect on growth in macroeconomic studies which examines the effect of aggregated aid which include non-developmental aid. On the other hand, aid shows positive impact on development in microeconomic studies which focused on disaggregated aid (Clemens, Radelet & Bhavnani, 2004). These scholars examined two forms of aid: one that brings early effect for instance aid directed for infrastructure development versus aid that has long term impact that is directed towards health, humanitarian and education. Their

result established that aid which is directly targeting infrastructure is positively associated with real GDP growth as a dependent variable. The findings suggested that a $1 increase in short-effect aid increases income, on average, by $1.64. This was partially confirmed by Clemens et al (2012) who found a positive modest relationship between aid and development in cross-country panel data. Their study investigated the impact of aid directed at producing 'early effect' on growth through infrastructure development. These findings strengthened Clemens and Gani (2003)'s results who had discovered a positive correlation between aid for education and health and human development in lower-middle income countries. These researchers used poverty reduction as a dependent variable in this study. Their sample consists of 65 developing countries and covered a period from 1991 to 1995. It used OLS regression to test whether educational aid, health aid and food aid have a positive impact on human development. However, Lohani (2004) in the study on the effect of social aid on development found a negative relationship between foreign aid and development. Lohani's study is the only one that used HDI as dependent variable. Instead, his results confirm that foreign direct investment and domestic investment are critical in national development. Social aid showed a negative impact on the Human development index.

The other study that proved the ineffectiveness of total aid in promoting growth was conducted by Rajan and Subramanian (2008), which distinguished between bilateral aid versus multilateral aid, and Scandinavian originated aid versus non-Scandinavian originated aid. Their findings established that aid driven by geopolitical factors does not have influence on development, as measured by real GDP growth as a dependent variable. This could have been a result of the varying purposes of aid which has nothing to do with development (Fleck & Kilby, 2006a). The most recent study that tried to examine disaggregated aid was done by Reddy and Minoui (2009). This study divided aid into development aid versus non-development aid. It tries

to follow preceding studies' approaches of Headey (2007) and Bobba and Powell (2007). These studies argued that failure to differentiate between pro-growth geostrategic aid and growth-neutral geostrategic aid result in the finding of negative effect of aggregate aid on development in cross-country studies. Their study investigated a sample of 56 countries over a period from 1970 to 2001. The results proved that multilateral aid had positive effects compared to geostrategically compelled bilateral aid that was championed during the Cold war. However, the After-Cold war dataset, bilateral aid showed a positive and big impact on growth. In addition, other studies divided aid into the aid directed towards political allies versus aid channeled to non-allies (Bobba & Powell, 2007). This study was driven by proof in literature that political issues such as former colonial bonds, positions in major political alliances, had an influence among aid flows from OECD donor countries. The study established a positive effect of aid directed to non-allies on growth with that extended to political friends yielded negative effect. Just like many of these studies, Reddy and Minoui (2009) found a positive effect of developmental aid on economic real GDP growth while non-developmental aid has negative effect and is mostly growth neutral.

2.4 Criticism of Disaggregated aid effectiveness

In spite of an attempt to disaggregated aid, the above studies still fall in the same fallacy as those studies that were examining the impact of total aid on development. The sectors used are still too much aggregated and therefore need to be subdivided into minor strands such as aid extended towards social infrastructure and services (education, health, sanitation and housing), aid spent on infrastructural services (transport and communications, energy and electricity). The study by Clemens, Radelet and Bhavnani (2004), that divided short effect versus long effect aid failed to disaggregate actual components of aid. For instance, aid that promote growth in a long

run comprises varying forms which are social aid, environmental conservation or democratic aid and on the other side aid for quick growth was bunched again in that it included infrastructure aid and productive aid that can be evaluated distinctively. There is a need to further subdivide these kinds of aid and examine the microeconomic of social aid versus infrastructure aid on development. In line with this view, Reddy and Minoui (2009) ‘s study that divided aid into developmental versus no-developmental aid was too generalized. Aid that is meant for development could have diverse effects for example developmental aid towards infrastructure, social sector, production sector and other unspecified investments tend to influence development differently. In this view, their conclusion that the right kind of aid can have a substantial positive impact on long-run economic growth, though seem to be correct need further scrutiny.

2.5 Justification of the current study

Unlike many of the previous studies, that failed to subdivide aid into specific components, the current study tries to narrow down the type of aid by examining separately the effects of social aid, infrastructural aid and productive aid on development. It has been noted that different kinds of aid have divergent effects on growth, therefore should be evaluated separately. Furthermore, the previous studies such as that of Lohani (2004) that examined effect of social aid on human development used a sample from different regions. In addition, countries, especially from varying regions experience diverse challenges of Dutch disease, fungibility and governance which impacts respective influences of aid. To address that challenge, the current study focused on a Sub-Saharan region that has almost similar features. Though Hussein and Lee (2012) recommended the study of a single country for a particular time, this study used the single region with countries of almost similar economies and reasonably homogeneous to be investigated together and make generalized results. This study further includes a longer period with recent

data from 1994 - 2010 since social aid need time to show its effect on development. This is different from previous studies which concentrated their studies in the 1990s. It further went on to include the aid policy interaction to further test if domestic environment can have an effect on social aid contribution to development. In addition, the current model further recognized that apart from social aid, other factors also impact national development such as domestic investment, domestic policies, and GDP per capita.

2.5.1 Human Development Index as the Best measure of Development

The unique nature of the current study is that it used HDI to measure development and social aid to represent aid towards developmental purposes and a hypothesis that aid has a positive effect on HDI. The major advantage of using Human Development Index is its integrative nature in that it includes wide facets of development apart from economic growth, such as long life, educational level and standard of living. These are the prime indicators of development, in that people from developed world should be healthier, educated and afford high living standard. Thus, this thesis builds on the strength of the previous studies. Previous studies often used economic growth as a proxy for development (Reddy & Minoui 2009) and some used poverty reduction as a dependent variable that measure of development (Clemens et al., 2004)

Donors face a trade-off on where to focus more developmental aid, either to infrastructural sector that result in rapid economic growth or social sector that benefit the poor directly through education and improved health standards in an attempt to promote national development. According to Weiss (2008), such trade-offs need to be prevented by ensuring that government expenditures on social sectors such as health and education that have a direct impact on the poor are protected and supplemented at the expense of other growth oriented issues such as infrastructure development. Thus, it is hypothesised that social aid promotes long run

development. However, Kaufmann and Kraay (2002) argues that good governance promotes sustainable development; this has forced the current study to include the domestic policy variable that captures the governance element. Therefore, it is further hypothesised that social aid is effective in countries with good domestic policies as measured by governance indicators.

The establishment of evidence that in line with the SDG goals which are pro-poor, more aid should be directed towards the social sector that result in growth that benefit the poor instead of focusing on other sectors of the economy that disproportionally benefit the richer is critical at this juncture. There is lack of profound evidence that infrastructure aid reduce poverty directly. In this regard, the main objective of this study is to compare the relative contribution of the social aid against infrastructure aid on the long-term development, measured by Human Development Index (HDI), not short term goal of development measured by growth of per capita GDP in the Sub-Saharan Africa region.

3. RESEARCH METHODOLOGY AND DATA

This section provides the method used to evaluate the impact of social aid on the development of the Sub-Sahara Africa region and the advantages of that model. In addition, the econometric model showing the variables included, descriptive statistics and correlation matrix was also outlined. Following, the nature and sources of the data used was specified. Thereafter, a brief analysis of the sample used, and its justification was provided. Lastly, the section concludes by providing definitions of each variable, expected result and the data sources.

3.1 Methodology

This study used a quantitative method to empirically investigate the impact of social aid on national development and employed fixed effects regression model. The results of the Hausman test were used to decide on fixed effects or random effects methods. The main assumption for fixed effects is that discrete specific effects are correlated with the independent variable. This model is more efficient as in determining the panel data across many countries. The fixed effects model is a statistical model that represents the observed quantities in terms of explanatory variables that are treated as if the quantities were non-random. In this regard the use of the fixed effects enable researcher to make pragmatic, policy relevant inferences in the contribution of social aid on long term development of Sub-Sahara Africa.

This is against the prime purpose of social aid or simply, official development aid (ODA), to promote development in the receiving region (Ramiarison, 2010). Such flow of aid from developed world to the developing world has been hailed as the solution to world poverty. The study also sought to test if there is a significant relationship between aid and national development in countries with good domestic policies. World Bank report (2003), showed that massive poverty, low levels of education, in-access to health treatment and slow GDP growth is

still common in most African countries, regardless of millions of dollars from developed world.

3.1.1 Econometric model

This study followed an ordinary least squares regression model. The model is as follows:

$$HDI_{it} = \alpha + \beta_{1*(Gdp\_per\ capita)\ it} + \beta_{2*\ (Social\ Aid)it} + \beta_{3\ *(Infrastructure\ Aid)it} + \beta_{4*(Policy\ index)\ it} + \beta_{5*(Social\ aid*Policy)it} + \beta_{6*(Domestic\ investment)it} + \beta_{7*(Foreign\ direct\ investment)it} + \beta_{8*(trade\ )\ it} + \beta_{9*(gvn\_educ\_exp)\ it} + \ldots . \varepsilon \quad (1)$$

Where

i and t: are country and year (during 1994 to 2010)

α : is the constant

HDI_{it}: is Human development index indicators, the dependent variable

$\beta_{1*(Gdp\_per\ capita)}$ is a measure of average income per person in a country.

B_{2*} (Social Aid)it is % of social aid to GDP

$B_{3*(Infrastructure\ Aid)it}$ - as a % of infrastructure aid to GDP

$B_{4(Policy\ index)it}$ – is domestic policies variable

$B_{5(Social\ aid*Policy)\ it}$ – is an interaction between social aid and policy index.

$B_{6*(Domestic\ investment)it}$ is a % of domestic investment to GDP

$B_{7*(foreign\ direct\ investment)}$ it as a % to GDP

$B_{8*(trade)}$ it as a % trade to GDP

$B_{9*(gvnt\ edu\ \_expe)\ it}$ % of government education expenditure to GDP

ε – is other determinants of development such as trade, etc.

There will be three models: (1) unlagged model (2) the short term 5-year lag and (3) Long term ten-year lag model. Therefore, foreign direct investment, domestic investment, social aid,

infrastructure aid and government education expenditure variables were lagged first by five years and then ten years each to capture for their long effects on development This method was also used by Lahani, (2004), because these variable does not have immediate effects on HDI. The impact is not prompt. Clemens (2003) pointed that more time is needed to improve literacy rate and raise the health standards. In the same vein, lagged independent variables start to show effects on HDI after some time too. The time lag is similar for the same period for easy comparisons. The model incorporates, a dependent variable, Human development Index (HDI) and nine independent variables, namely: social aid, infrastructure aid foreign direct investment, trade, domestic investment, Policy index, GDP per capita. Since, the major interest in this study is on the social aid and policy index variables as shown in the hypotheses in chapter 1. a social aid*Policy interaction was also included. HDI is a complex index that measures national development by estimating health standards, educational levels and overall living standards of the people in a particular country (UNDP Report, 2001).

In this regard, the fixed effects were carried out on the Ordinary Least Squares (OLS) model which permits estimations for the time invariant specific factors. The diagnostic tests were carried out to determine the appropriateness of the fixed effects model. First the Breusch-Pagan Lagrange Multiplier for testing the variances across entities and the results gave a thumb up for the random effects. In an effort to further authenticate these results Hausman test was further carried out.

3.1.1 Further Robustness check

This study acknowledged that the lagging of variables of interest would not appropriately resolve the issue of reverse causation in equation (1). Thus, a further check for robustness of results was done by employing GDP per capita as a dependent variable in the same model, which

has also been applied by several recent contributions in the aid-growth literature (e.g., Arndt et al., 2010; Hansen & Tarp, 2001). Although some studies have pointed out that GDP per capita should not be taken as a panacea for all estimation issues, it has been used extensively in the recent literature. For example, Rajan and Subramanian (2008) preferred using the GDP per capita for their panel-data analysis of the impact of aid driven by geopolitical factors on development. Thus, the relationship estimated was as follows

$$GDP_{(per\ capita)it} = \alpha + \beta_{1*\ (Social\ Aid)it} + \beta_{2*(Infrastructure\ Aid)it} + \beta_{3*(Policy\ index)\ it} + \beta_{4*(Social\ aid*Policy)it} + \beta_{5*(Domestic\ investment)it} + \beta_{6*(Foreign\ direct\ investment)it} + \beta_{7*(trade\ )\ it} + \beta_{9*(gvn\_educ\_exp)\ it} + \ldots . \varepsilon \quad (2)$$

If the results in this new model shows that social aid is not effective on per capita GDP growth, then the result will be more robust. It should be noted that development does not mean only the per capita GDP growth, it need to be interpreted more broadly like HDI. However, if the new model shows the same results as the first model, it is not a matter of selecting right dependent variable as a measure of development. the structure of the model or something else is responsible and it should be the subject of future studies

3.2 Data collection and analysis

This study used a panel sample of 40 Sub-Saharan African countries whose Human Development index is below 0.8 in the year 2010. However, the lack of data among some nations resulted in the automatic exclusion from the panel; hence only 34 countries were analyzed. The UNDP referred a nation with HDI above 0.8 as developed one (UNDP Report, 2001). In that case the current sample consists of countries with an HDI below the 0.8 and a complete list of these countries is listed in Appendix I. The HDI values of interest stretched from 1994 to 2010 to see how national development had evolved over that period. This period was enough to measure

the impact of social aid on HDI. The major reason for choosing this period is the availability of data over that time. The HDI data was collected from the Human Development Reports on UNDP website and the social aid and infrastructure data was obtained from the International Development Statistics (2013) published by the OECD. The other independent variables' data such as domestic investment, foreign direct investment, openness to trade, government expenditure on education and GDP per capita was retrieved from the World Bank Indicators published by the World Bank. The policy index data was obtained from worldwide governance indicators published by the World Bank.

3.2.1 Research variables and expected Relationship with HDI

In order to examine the role of social aid on national development in comparison to infrastructural aid and other growth variables, this study followed research model from Lahan (2004) and make some modification by focusing on Sub-Saharan African region, adding the other variables. Accordingly, the variables that were included in this model and their expected relationship are as follows:

Table 2 - ***Dependent and Independent Variables and their expected coefficients***

Variable	**Definition**	**Source**	**Sign**
Dependent HDI(index)	HDI is an average of (income index + health index + knowledge index)	UNDP reports	
Independent Social_Aid$_t$ (% of GDP)	Educational aid health aid and other aid directed towards social services as percentages of GDP to create the social aid index.	OECD website	+
Infrastracture_Aid (% of GDP)	Economic aid and other aid directed towards infrastructural services as percentages of GDP to create the infrastructure aid index.	OECD website	+
Policy index (It is a composite variable)	The average of the Worldwide Governance Indicators (WGI) was used to create a domestic policy index. Aver*(sum of voice and accountability, political stability and absence of violence, government effectiveness, regulating quality, rule of law, and control of corruption).	Worldwide Indicators (WWI)	+
Domestic investment (%of GDP)	This variable consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. It is also called Gross capital formation	World databank Indicators (WBI)	+
Foreign direct investment	It is the sum of equity capital, reinvestment of earnings, other long-term	World databank	+

(%of GDP)	capital, and short-term capital as shown in the balance of payments. and is divided by GDP	Indicators (WBI)	
Gvn_educ_exp (% of GDP)	Total general (local, regional and central) government expenditure on education (current, capital, and transfers), expressed as a percentage of GDP	World databank Indicators (WBI)	+
Trade (% of GDP)	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	World databank Indicators (WBI)	+
Social aidXPolicy	The interaction variable was made up from the product of social aid index and index.policy	WBI & OECD	+
Gdp_percapita US$)(constant 1994)	GDP per capita is gross domestic product divided by midyear population.	World databank Indicators (WBI)	+

3.2. 2 Definitions of variables

It should be noted that as mentioned in chapter 2, **Human development index** is the dependent variable in this study whose changes will represent the development index or simply the national development. The major advantage of using Human Development Index is its integrative nature in that it includes wide facets of development apart from economic growth, such as long life, educational level and standard of living. These are the prime indicators of development, in that people from developed world should be healthier, educated and afford high living standards. UNDP (2001) states that calculation for HDI is (income index + health index + knowledge index), further details re provided in appendix II. The lowest range of HDI is 0 (minimum level of development) and the highest is 1 (maximum level of development).

This study consists of nine independent variables namely; social aid, infrastructure aid trade, government expenditure on education, foreign direct investment, GDP per capita, domestic investment, policy index, social aid policy interaction and infrastructure aid policy index interaction. However, the most independent variables of interests are social aid, infrastructure aid, policy index and the interactions term. The other variables were used as control variables.

Social aid: The main independent variable of this study is social aid. This study used educational aid health aid and other aid directed towards social services as percentages of GDP

to create the social aid index. The variable, social aid includes entire financial assistance that is targeted towards social services and infrastructure such as education and health, both bilateral and multilateral aid. Anand and Ravallion (1993) found a positive relationship between longevity and individual health spending. The same effect was established between increased adult literacy rates and spending on education (Anand & Sen, 2000). Taking into account that both health aid and educational aid impacts positively health and educational indices, aspects of HDI respectively, it is hypothesized that social aid has a positive effect on national development. However, social aid was found to have a positive insignificant relationship with HDI by Lohani (2004), thus it is expected to have a positive relationship with HDI in the current study.

Infrastructure aid: This study used aid directed for economic infrastructure as percentages of GDP to create the infrastructure aid index. The variable, infrastructure aid includes entire financial assistance that is targeted towards construction of roads, bridges and electricity both bilateral and multilateral aid. It is expected to have a positive relationship with national development, and therefore with HDI.

Policy index: This variable is made up of six components of the World-wide Governance indicators of voice and accountability, political stability and absence of violence, government effectiveness, regulating quality, rule of law, and control of corruption. It ranges from -2.5 which is weak governance to 2.5 which is strong governance with good domestic policies. Furthermore, good domestic policies improve HDI by preventing the misuse of aid money, and other corrupt activities that derail development. Burnside and Dollar (2004) showed that aid have a positive relationship with economic growth in countries with good governance (domestic policies). Subsequently it is expected that policy*social aid interaction variable will have a positive impact on HDI which promote national development.

GDP per capita: Lastly, GDP per capita signifies an improvement in individual income, which enables the underprivileged to afford basic facilities of life. It plays a crucial role in national development. If individuals do not get sufficient income, they should also expect to live longer, paying for the health services and their education. Further recent studies showed that GDP per capita have a positive relationship with HDI, and suggested that improving GDP per capita reduce poverty and rises public expenditure on education and health (Anand & Ravallion, 1993). Therefore, GDP per capita is expected to have a positive coefficient.

Social_Aid*Policy index interaction variable was made from the products of social aid index, and policy index respectively. This variable was expected to be positive since it incorporates the effects of both aid and the domestic policies of a particular country.

Foreign direct investment: Foreign direct investment provides expenditures towards industries through private businesses. This provides jobs to the citizens and in turn increases their income, thus impacts HDI, by improves people's standard of living. This variable is expected to have a positive sign. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP.

Domestic investment: In the same vein, government spending in social sectors such as education and health impacts HDI by raising health standards, educational levels and general standard of living. This variable, just like foreign direct investment is expected to have a positive sign. This means that the government increase **Government expenditure to education** which is another variable subject to the current study and is expected to have a positive sign.

3.2. 3 Descriptive statistics

The descriptive statistics for these variables are e shown in the table 3 below:

Table 3 ***The study Descriptive Statistics and the Correlation Matrix***

	(1)	(2)	(3)	(4)	(5)
VARIABLES	**N**	**mean**	**sd**	**min**	**max**
Dependent Variable					
HDI index	658	0.437	0.140	0	0.800
Independent variables					
Foreign direct investment as % of gdp	650	4.797	11.95	-82.90	161.8
Domestic investment as % of gdp	661	20.92	20.27	-2.400	219.1
Infrastructure aid as % of gdp	604	2.073	3.009	0	22.40
Social aid as % of gdp	649	5.292	5.538	0	35.30
Trade as % of gdp	625	81.22	57.14	21	531.7
Government educ expend as % of gdp	321	4.327	2.362	1	15.60
Policy index	680	-0.455	0.605	-2.200	0.900
SocialXPolicy	649	-2.664	5.071	-43.65	4.800
Number of id	34	34	34	34	34

	hdiindex	policy~x	Social~y	govern~s	tradea~p	social~p	infras~p	domest~p	foreig~p	gdp_pe~s
hdiindex	1.0000									
policyindex	0.3861	1.0000								
SocialaidX~y	0.2317	0.6404	1.0000							
government~s	0.1809	0.3192	0.1456	1.0000						
tradeasofgdp	0.2573	0.1031	-0.1452	0.3791	1.0000					
socialaida~p	-0.2964	-0.1481	-0.6233	0.0294	0.0739	1.0000				
infrastruc~p	-0.1317	-0.0501	-0.2571	-0.0519	-0.0222	0.3388	1.0000			
domesticin~p	0.2111	0.1176	-0.0603	0.2021	0.6825	0.0557	0.0274	1.0000		
foreigndir~p	0.0632	-0.0021	-0.1779	0.0795	0.6648	0.1166	0.0351	0.8003	1.0000	
gdp_percap~s	0.4166	0.4188	0.2601	0.1653	0.3259	-0.3602	-0.2095	0.1461	0.0910	1.0000

The correlation matrix above shows that multicollinearity is not an issue, therefore all factors are used are not redundant.

4 RESULTS AND DISCUSSION

This section provides a detailed account of the results obtained from the regression analysis using panel data of 34 countries over a period of 1994 to 2010 applied on the Ordinary Least Squares Fixed effects estimation method. Firstly, the results from the diagnostic tests that confirmed the use of the fixed effects model over random effects model will be outlined. Furthermore, a critical analysis and interpretation of the results followed in the discussion section.

4. 1 Results of the Diagnostic tests

Two tests were carried in this regard: Breusch-Pagan Lagrangian Multiplier test for Random Effects and the Hausman Test for an appropriate test

4. 1 .1 Breusch-Pagan Lagrangian Multiplier test for Random Effects

It was taken into account that cross-country analysis is not clean and they include a number of methodological complications such as unobservable heterogeneity of nations. It should be noted that diverse nations have specific features in economic system, political and social system. It is not crystal clear if such individual differences of these variables taken into consideration in the current model even if they are noticed. Despite the fact that most countries in this study had almost similar income levels and structures, the problem of heterogeneity remains, and need to be examined so as to come up with a best estimation technique. Therefore, the Breusch-Pagan Lagrangian multiplier test for random effects was conducted to see if the panel estimation is a suitable method instead of pooled Ordinary least squares. The test for the whole model was conducted and the results are displayed in Table 4 below.

Table 4 ***Results of Breusch-Pagan Lagrangian Multiplier test for Random Effects***

```
Breusch and Pagan Lagrangian multiplier test for random effects

        hdiindex[id,t] = Xb + u[id] + e[id,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                hdiindex |    .0198357       .1408391
                       e |    .0074318       .0862081
                       u |     .006518       .0807344

        Test:   Var(u) = 0
                                  chibar2(01) =     94.65
                              Prob > chibar2 =    0.0000
```

The null hypothesis for this test stipulates that variances across entities is zero Var (εi) = 0. However, the results show that there is panel effect over nations in the current sample. Results in table 2 indicated a very large chi-square of 94.65 and a p-value of 0.0000. Thus, the null hypothesis is rejected, therefore, there is significant country unique effects that need to be considered. Subsequently, a panel of random effects estimation for social aid impact on development model could be appropriate. However, a more robust test for appropriate was needed.

4. 1.2 Hausman Test for an appropriate test

In order to decide on which appropriate panel estimation; fixed or random effects, a Hausman test was conducted. The results are displayed in table 3. There is a large Chi-square test statistic of 36.17and a small p-value at 0.0000 in this regard; the result rejected the null hypothesis that the difference in the coefficients generated by the model is not systematic. Subsequently, conducting a fixed effects model for the social aid - development regression analysis is appropriate.

Table 5. ***Results of the Hausman test***

```
. hausman fixed random

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed       random       Difference          S.E.
-------------+------------------------------------------------------------
SocialaidX~y |  -.0046076   -.0039443      -.0006634        .0012688
 policyindex |   .0088526    .0150086       -.006156        .0112349
government~s |   .0073936    .0066681       .0007255        .0042174
tradeasofgdp |   .0012874    .0003431       .0009443        .0003527
socialaida~p |  -.0025656    -.003811       .0012454        .0008742
infrastruc~p |  -.0020481   -.0012961       -.000752        .0002606
domesticin~p |   .0015961    .0014307       .0001653         .000679
foreigndir~p |  -.0004648   -.0023018        .001837        .0007351
gdp_percap~s |   .0000241    .0000237       4.36e-07        8.61e-06
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       36.17
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)
```

The Hausman test basically tests whether the unique errors are correlated with the regressors. The results above showed that using fixed effects method will yield accurate results.

4. 1.3 Regression Results using Panel data analysis

This study used fixed effects panel test to examine the impact of social aid on Human development index using three models; the unlagged, five-year lag and ten-year lag. These models showed diverse effects on each variable's relationship with HDI, depending on the time

it takes for the variables to impact development. Most of them took long for their effect to be realized. The coefficients and t-statistics results for the fixed effect models are shown in table 6.

Table 6 ***The Fixed Effects Regression Results with a Dependent variable of HDI***

VARIABLES	(Model1) [Fe unlag]	(Model 2) [Fe 5yr lag]	(Model 3) [Fe 10yr lag]
Social aid*Policy	-0.00461	-0.00316	-0.0115*
	(0.00352)	(0.00290)	(0.00589)
Policy index	0.00885	0.00527	0.00237
	(0.0261)	(0.0342)	(0.131)
Government education expenditure	0.00739	0.00815	0.00949
	(0.00656)	(0.00737)	(0.0138)
Trade	0.00129***	0.00186**	-0.00122
	(0.000445)	(0.000771)	(0.00191)
Social aid	-0.00257	0.00461***	0.00350
	(0.00263)	(0.00156)	(0.00315)
Infrastructure aid	-0.00205	-0.000805	0.00370
	(0.00260)	(0.00241)	(0.00399)
Domestic investment	0.00160	0.000711	0.00374
	(0.00106)	(0.00118)	(0.00314)
Foreign direct investment	-0.000465	0.000479	-0.000815
	(0.00184)	(0.00153)	(0.00278)
Gdp per capita	2.41e-05**	2.11e-05	5.10e-05
	(1.14e-05)	(2.96e-05)	(0.000101)
Constant	0.284***	0.236***	0.350*
	(0.0429)	(0.0706)	(0.177)
Observations	268	168	77
R-squared	0.122	0.142	0.225
Number of id	34	32	31

Robust Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4. 2 Interpretation of Results

Basing on the results of Hausman test which recommended the use of Fixed Effects, these above results was yielded. The three panel fixed effects regression models generated the following adjusted R^2 of, 0.122, on unlagged model, 0.142 on five-year lag and 0.225ten-year lag which means that 12.2%, 14.2% and 22.5% of the variation in the HDI dependent variable is

explained by the empirical models depending on the time respectively. Most of the coefficients of all variables have the expected signs on the first model. However, policy index and foreign direct investment gives negative signs, contrary to the expected positive signs on both variables.

On the unlagged model, only two variables showed significant results. The first is the trade variable which yielded a coefficient of 0.00129 significant effects on HDI with a positive effect as expected. These means increasing trades by one unit, HDI, will rise by 0.00129. This was supported by the significance results on the five-year lag model which showed a positive and statistically significant coefficient of 0.00186. However, in the long term, trade has no effect on HDI as denoted by statistically insignificant results of -0.00122 on ten-year lag model. The result further established that when GDP per capita increase by one dollar, Human development index (HDI) rise by 2.41e-05. This is significant at 0.05 levels. However, compared to other coefficients of trade and domestic investment variables that are significant on the same model, this GDP coefficient is relatively small. This implies that factors such as trade and increase in income have stronger influence on HDI. Increasing GDP levels actually contributed to the development of a country, but its impact is outshined by other factors. In this regard, trade and growth in per capita GDP play a significant role in stimulating national development in the short run. These factors improve human well-being, which results in poverty reduction.

However, on the contrary side, the coefficients for policy index are not statistically significant on the three models, refuting the hypothesis that good domestic policies promote national development. This was further strengthened by the coefficients of an interaction variable between social aid and domestic policy index, which are negative on all models and turned to be negatively statistically significant on the ten-year lag model. These insignificant results may not necessarily mean that the combined effects of good policies and social aid are detrimental to

national development. The results were probably due to statistical bias from reverse causation. According to Burnside and Dollar (2004), if a country has good policies, it is more likely use aid in appropriate way that promote development.

The coefficients of social aid produced insignificant coefficients in the unlagged model of -0.00257, showing that social aid has no effect on HDI on the short run. However, at a five-year lag model it turned to be positive with statistically significant coefficients of 0.00461. These results supported the hypothesis that social aid stimulates long term development. Though it looks too small, it is significant at 0.05 levels. In addition, considering that HDI has a value that ranges from 0 to 1. This means if, social aid as a percentage of GDP increases by 1% point HDI index will rise by 0.00461. One should note that development is not an overnight thing, it takes time and many factors combined to impact it. Furthermore, the trend in the sample showed that it is rare for any country to experience a 0.1 increase in HDI in less than ten years. Therefore, the results are reasonable that social aid promote development in the long run. However, the statistically insignificant coefficients of 0.00350 with the 10-year lag model shows that we cannot state that social aid have any contribution to development. Therefore, we can state that social aid makes contribution to HDI over around 5-year period.

The insignificant results of infrastructure aid show that infrastructure aid has no impact on HDI in both short-term and long term time span. Subsequently, infrastructure aid does not promote long term development; it may contribute to the rise in GDP but not to the sustainable national development represented by HDI since the effects does not impact directly to the health and education of the poor.

4.3 Results of Further Robustness check

As indicated in chapter 3 above, social aid, policy index and its interaction term are the variables of interest. As indicated in the hypothesis, this study expects social aid to have a positive impact on GDP per capita which in turn is expected to lead to national development. The theoretical basis is that aid provides the much needed resources for economic growth in resource constrained countries. Table 7 below shows the results of a fixed effects regression using GDP per capita as dependent variable:

Table 7 ***The Fixed Effects Regression Results with a Dependent variable of GDP per capita***

VARIABLES	(Model 1) [Fe unlag]	(Model 2) [Fe 5yr lag]	(Model 3) [Fe 10yr lag]
Foreign direct investment	2.080	-8.935	7.640
	(10.66)	(9.015)	(15.58)
Domestic investment	-0.394	-18.08***	-5.562
	(6.408)	(6.827)	(16.55)
Infrastructure aid	-28.43*	-16.92	25.04
	(16.39)	(14.11)	(22.90)
Social aid	-30.20*	14.65	3.760
	(16.52)	(9.223)	(17.95)
Trade	8.828***	10.33**	-7.645
	(2.667)	(4.282)	(10.34)
Government education expenditure	30.95	-77.18*	-8.025
	(41.56)	(43.63)	(78.37)
Policy index	229.9	-163.7	679.9
	(164.3)	(202.7)	(752.0)
Social aid*policy	-28.74	-0.967	-5.256
	(22.22)	(17.20)	(33.91)
Constant	575.9**	1,275***	3,184***
	(270.9)	(404.7)	(969.6)
Observations	273	170	79
R-squared	0.071	0.130	0.117
Number of id	35	33	32

Robust Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Contrary to the expected results, the findings indicated a negative impact of social aid on per capita GDP in Sub-Saharan African. The social aid variable has a statistically significant and negative coefficient of -30.20 on the unlagged model and insignificant coefficients on the five-year and ten-year lagged models. The magnitude of the coefficient also indicates a negative relationship between social aid and per capita GDP, where an increase in the aid to GDP ratio by one percentage point on average leads to approximately a 30.2 percentage points decrease in share of GDP invested in capital formation. It can therefore be concluded that indeed aid has helped in increasing HDI as indicated in equation (1) in these 35 countries and to this effect aid has been very effective.

However, social aid has no similar effects on the economic growth as measured by per capita GDP. Studies that found a similar result include Djankov., et al (2006) who proved a negative relationship between aid and economic growth as a result of decreasing investment at the expense of increasing consumption. As for policy index and its interaction with social aid, the results are neither statistically nor economically significant indicating that in practice domestic policy, even though combined with social aid have no significant impact on economic growth. Social aid was interacted with the policy variable to determine whether indeed the effectiveness of social aid depends on the quality of policies of the receiving country as claimed by studies such as the Burnside and Dollar studies.

5. CONCLUSION AND RECOMMENDATIONS

This section provides the final conclusions reached, policy implications, limitations and suggestions for the future studies in the investigation of the impact of social aid on development.

5.1 Conclusions

The overall objective of this study was to evaluate the impact of social aid on national development in Sub Saharan African countries over the period 1994 – 2010 and compare the relative contribution of the social sector aid and infrastructure aid to the long term of development measured by Human Development Index (HDI), not short term goal of development measured by growth of per capita GDP in the Sub-Saharan Africa region. The study further, investigated the impact of domestic policies on the contribution of social aid on development. To address this, worldwide governance indicators were used to create a domestic policy index. For the better, estimation, data for aid variables was obtained from OECD websites and that of other development variables was retrieved from World Bank data website. A total of ten variables, a dependent variable, Human development Index (HDI) and nine independent variables, namely: social aid, infrastructure aid foreign direct investment, trade, domestic investment, Policy index, GDP per capita and interaction term of social aid and domestic policy index as independent variables.

The major findings in this study are that social aid had a significant effect on long term development in the Sub Saharan African region. This effect was possibly by the lasting effect of social services such as education and health in people's productivity. This supported the hypothesis that social aid promotes development in the developing nations. This builds on the strength of Clemens and Bavnhani studies and by focusing on the Sub Saharan Africa region, it overcame limitations of these previous studies which made generalized conclusions on nations

with different features. However, since more other factors such as are of great importance to the development of the nation, this study despite failing to include them had recognized them. Furthermore, the results have failed to prove that social aid only works where domestic policies are good. This is because of the insignificant coefficients produced by the social aid*domestic policy interaction variable. However, this finding maybe a result of the bias data and the narrowness of the policy index and should not be relied on. The idea that social aid on its own was positively significant and though domestic policy was also positively not significant could make one conclude that good policies are required for aid to be more effective.

In conclusion, foreign aid directed at social services such as education and health has a positive impact on long development as compared to other forms of aid such as infrastructure aid which has positive effect on short term development. In addition, the effect of social aid does not depend on the domestic policies of the recipient countries. It is however, noted that there is strong evidence that social aid has positive impact on HDI, and it is difficult to say that social aid is more effective than infrastructure aid in this analysis.

5.2 Policy implications

The above analysis and the established results have critical policy implications that could guide donors on the kinds of aid to provide in order to promote development in the Sub Saharan African countries. The analysis has strengthened an argument made by Reddy and Minoui (2009) that social aid is more useful in promoting long term national development compared to other forms of aid such as infrastructural aid that is only useful for short term growth.

By comparing the coefficients of social aid against that of infrastructure aid one would recommend that donors should provide more social aid. This could help in achieving one of the World Bank's sustainable Development goals of ending extreme poverty by 2030 and promote

shared prosperity (World Bank Report, 2015)

Therefore, for the effectiveness of aid to be registered in the developing world, there is need for some improvements in the allocation criteria of the aid. Firstly, more aid should be focused on the construction of schools, hospitals, and other social services infrastructures. Improved human capital can result in productivity labor force, which is healthy and more innovative. This will bring Sub-Saharan African region out of abject poverty and resulting the overall rise in the HDI of these nations. The second measure that should be considered in making aid more effective in bring about development, is the use of strategies that improve the domestic policies of the recipient nations. This study established a positive insignificant relationship between domestic policies and development. Since the domestic policy index was a composite of worldwide governance indicators, extra efforts should be directed towards improving good governance and technical assistance on policies and institutions.

However, it should be noted that there are some limitations on these recommendations, since social aid and good governance alone cannot bring about required development in these countries. In addition, the suppression of poverty in all its forms need steady increase of incomes which infrastructural aid tend to promote more. The last policy implication of this study is that sustainable development requires addressing extensive inequality of opportunity which pass poverty over generations. In order to meet these encounters, three elements are core to the policy agenda: sustaining broad-based growth, investing in human development, and insuring the poor and vulnerable benefit directly from foreign aid.

5.3 Limitations of the current study

There were some cautions on the results of this study that need to be noted, and a recognition of a number of limitations that is associated with it. The most notable one is that this

study the methodology employed might not be the proper one for examining the relationship between social aid and national development. In addition, interaction between WGI policy index and social index is likely to be very complicated as it may result in reverse causality and require a full-fledged panel analysis with lagged and forward effects. For instance, before the provision of any social aid in an authentic setting, bad policy in the past could result in poor outcomes today, but social aid response could be negative (not supporting bad policy) or positive (helping out the poor).

5.4 Recommendations for further research

The failure to prove the interaction between social aid and domestic policies leaves room for further studies using an alternative policy indicator such as The World Bank CPIA which covers a broad range of policy issues that implicate development. In addition, future researchers are urged to try other alternative models in investigating the same issue. If these oncoming studies replicate these findings, more confident conclusions will be established that more social aid promote development. These future studies should try to add more variables that also impact development. Also, the sample need to be narrowed down since Sub-Saharan African countries are not generally the same, the small sample could either focus on the Southern part, Eastern part and central parts of Africa respectfully, those studies would have richer policy implications. It is also recommended that for further robustness check, it would be useful to have one year lag, two-year lag and ten-year lag models respectively.

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APPENDIX 1

Calculation of **HDI** 1) **Calculation of the Life Expectancy Index**

The life expectancy index measures the life expectancy at birth. It is calculated using the following formula:

Life expectancy index = (Life expectancy at birth - 25)/(85-25).

2) Calculation of the Education Index

The education index measures a country's achievement in adult literacy and combined primary, secondary, and tertiary gross school enrolment. It is a weighted average of the adult literacy index and the gross enrolment index. The formulas are given below:

Adult Literacy Index=(Adult Literacy Rate-O)/(100-0)

Gross Enrolment Index=(Gross enrolment ratio in percentage-O)/(l 00-0)

Education Index=2/3(Adult Literacy Index)+1/3(Gross Enrolment Index).

3) Calculation of the Income Index

The income index represents the standard of living of people in a country. It is calculated using the logarithm of GDP per capita (PPP US$). This index is calculated using the following formula:

GDP Index=(logarithm of GDP per capita -log (lOO))/(log (40,000)-log (l00)).

4) Calculation of the HDI

The HDI is an average of the life expectancy index, the education or knowledge index,and the income index:

HDI=1/3(Life Expectancy Index) + 1/3(Education Index) + 1/3 (Income Index).

(Source: Human Development Report (2001), UNDP, United Nations, New York, NY

APPENDIX 2

SAMPLE NATIONS FROM SUB-SAHARAN REGION

Angola	Congo, Rep.	Lesotho
Benin	Cote d'Ivoire	Liberia
Botswana	Equatorial Guinea	Madagascar
Burkina Faso	Eritrea	Malawi
Burundi	Ethiopia	Mali
Cabo Verde	Gabon	Mauritania
Cameroon	Gambia	Mauritius
Central African Republic	Ghana	Mozambique
Chad	Guinea	
Comoros	Guinea-Bissau	
Congo, Dem. Rep.	Kenya	

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