

Health Care Sector Aid in Sub-Saharan Africa
Exploring potential reduction in infant, maternal, and child mortality rates

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Introduction

The poorest nations in the world are concentrated in Sub-Saharan Africa. The developmental assistance community has focused its attention in the region for many years in hope to improve the living conditions. Such effort is reflected in the yearly increase in bilateral, multilateral and private foundations' aid in various forms – grants, loans, technical and in-kind aid, just to name a few.¹ Consequently, international aid architecture has changed dramatically with new actors such as The Gates Foundation entering the scene of developmental assistance.

Despite the annual increase in aid, much of Sub-Saharan Africa continues to take a serious blow from multitudes of issues: infection rates for diseases such as HIV/AIDS and malaria remains high; conflict-related deaths are still rampant; and widespread starvation and malnutrition only complicate the relief-efforts.²

One of the key questions that the international development assistance community is, and should, be most concerned about is: *does it work?* Efficiency and efficacy of aid can be assessed in a number of ways, but have traditionally relied on metrics such as: increased productivity in the production sectors, level of malnourishment as measured by stunted growth, and income shared by the bottom 20%, among others.³

Depending on the sector aided, other metrics may be used to evaluate the impact. In the case of health sector, mortality rates such as infant mortality, child mortality and maternal mortality rates

¹ OECD CRS

² World Health Organization (WHO)

³ The World Bank. World Development Indicators. Available online at: <http://data.worldbank.org/indicator>

may be assessed throughout the aid and development projects.⁴ There are other indicators that may be used to assess the health of the recipient country, such as vaccination rates; however, aforementioned mortality rate data are the most readily available and also considered to be sensitive to many changes, including aid inflows.⁵

This paper attempts to examine the potential relationship between infant, child, and maternal mortality rates and Official Development Assistance (ODA) inflows to Africa. More specifically, the relationship between ODA to the health sector, as defined by the Organization for Economic Co-operation and Development (OECD) and its impact on the aforementioned health metrics are analyzed in the twenty poorest countries of Africa, as defined by the respective country's per capita gross domestic product (GDP) as reported by the World Bank.

Literature Review

The amount of literature on ODA and its impact is vast; they attempt to answer the fundamental questions of efficacy, efficiency, allocation and the general directions in which policy formulations on developmental assistance should take. Despite the number of literature available, there has been very little consensus on its efficacy or its potential impact in the future.⁶ Much of the empirical analysis on aid and development has concluded that the improvements seen in the recipient countries are statistically insignificant and often suffer from micro-macro paradox –

⁴ Common indicators used by The World Bank, UNDP, UNICEF, WHO

⁵ United Nations. Millennium development goals, targets and indicators. Available at: <http://mdgs.un.org/unsd/mdg/Resources/Static/Data/Stat%20Annex.pdf>.

⁶ Mishra and Newhouse, 2009.

that is, improvement or development may be seen on projects or other micro level assessments without having any significant impact on macro level indicators such as real GDP per capita.⁷

Many authors examining the impact of aid have disagreed on how the impact of ODA or its contribution to the achievement of national development goals should be analyzed in the recipient countries.⁸ Furthermore, the varying *scope* of impact studies – recipient country-level development and donor-side contributions to the observed macro-level impacts – is often difficult to connect and becomes increasingly complex as there are non-traditional stakeholders entering the scene of developmental assistance.⁹

Furthermore, there are methodological disagreements within the impact-study literature. The evaluation of aid is multifaceted with methodologies ranging from qualitative reasoning to reliance on econometric models. In the proceeding paragraphs, I will briefly review some of the notable recent works that highlight the differences in methodology and evaluation.

One of the ways in which aid impact has been evaluated is on a micro-level analysis. Many micro-level project evaluations have noted high returns. For example, according to an analysis conducted by The World Bank – one of the most rigorous of its kind – the joint project by the Commission for Africa and the World Bank noted remarkable return. The projects that occurred during 1993-2002 have reported an average return of 22%, which is much higher than what has been reported on similar wide-scale project.¹⁰ This highlights the importance and perhaps, the

⁷ Mosley, 1987.

⁸ Bigsten, 2005

⁹ Ibid., 16.

¹⁰ Commission for Africa Report. 2005.

misleading nature, of micro or macro-level evaluation done by the contributing parties. While this is just one example of how project evaluation must be evaluated both on micro and macro-levels and ideally by an external evaluation committee, illustrates one of many problems that aid impact studies may face.

Another way in which performance has been evaluated is through cross-country regressions through the use of econometric models. Much of the literature from 1990s and onwards have relied on cross-country regressions to identify conditional relationships between aid and growth. Burnside and Dollar (2000) paper, perhaps the most often cited work on the topic of aid efficacy, notes the relationship between good policies and growth impact of aid.¹¹ However, Collier and Dollar (2002) argues contrary to the policy recommendation made by Burnside and Dollar -- aid should be concentrated in high-poverty countries if the donors want to have maximum impact on global poverty reduction.¹² With many scholarly papers with econometric models as its centerpiece, the robustness of the model is usually the primary source of disagreements among scholars. For example, Easterly, Levine, and Roodman (2004) paper argues that the Burnside and Dollar model of aid and development is not robust enough and cannot conclusively make policy recommendations.¹³

Despite such disagreements, there is a general consensus that aid has had a positive impact on growth on some level – project and cross-country level – along with a general appraisal of countries with good governance receiving aid. Alesina and Dollar paper notes that donors quickly respond to change in governance, most notably to democratic change, but also to

¹¹ Burnside and Dollar, 2000.

¹² Collier and Dollar, 2002.

¹³ Easterly, Levine, and Roodman, 2004.

economic policy changes as well.¹⁴ Contrary such findings, they have also noted that donors usually have very little power to change the recipient-side policies and also argue for better accountability on the donor-side countries, instead of conditionality, must be sustained for development of the recipient nations.¹⁵

While ODA has garnered much attention from the global development assistance community, academics, and policy makers, the impact of sector-specific ODA has not been documented well in academic journals. Particularly with ODA for health, the only widely circulated paper examining the impact of health aid is a paper published in 2009 by the *Journal of Health Economics*.¹⁶ Although this area of study is certainly not new, the depth of understanding seems much less than that of general impact of ODA on development.

Assistance to the health sector has been increasing by most major bilateral donors and private foundations like The Gates Foundation and the Rockefeller Foundation have been active in the international aid community with a particular emphasis on global health issues. Traditional donors, including bilateral donors and international development banks still account for the majority of the aid; however, private foundations' contributions can easily surpass some of the minor bilateral donors.¹⁷

Sector-wide approach (SWAP) to aid has started to garner academic attention in the recent years with the World Bank favoring such approach for its developmental aid projects for health since

¹⁴Alesina and Dollar, 2000.

¹⁵ Ibid.

¹⁶ Mishra and Newhouse, 2009. Note: Also published two years prior in IMF Working Papers Series

¹⁷ OECD CRS

the 1990s.¹⁸ Sector-wide approach (SWAP) to developmental assistance is commonly defined in terms of its aim: “to achieve sustainability and national ownership by shifting external bilateral and multilateral funding from individual projects to the implementation of a country strategy and programs to deliver the strategy.”¹⁹ The shift from individual project-level funding to SWAP is meant to correct for the lack of accountability and sustainability among donors and recipients that frequently results from aid fragmentation.²⁰

Despite the increasingly complex international aid architecture and allocation mechanisms, many of the efficacy questions remain unanswered and inefficiencies often poorly addressed. While it is impossible to formulate a one-size-fit-all model of aid allocation, it may be useful to examine why some recipient countries are better equipped, or seemingly so, than others when receiving ODA.

In this paper, I will outline the current international aid landscape of some of the poorest countries in the world. In particular, I will focus on the efficacy of ODA allotted to healthcare sector as defined by the OECD CRS. In examining the efficacy of aid, I will focus on mortality rates – infant mortality, child mortality, and maternal mortality. While there are other metrics of health, the three mortality rate data are the most readily available from reputable sources such as The World Bank (WB) and the World Health Organization (WHO). Furthermore, the three mortality rates have also been used in evaluating progress for global initiatives such as the Millennium Development Goals (MDG).²¹

¹⁸ Foster, 2001.

¹⁹ Institute for Health Sector Development (IHSD), 2000.

²⁰ Schacter, 2001.

²¹ Millennium Development Goals, United Nations Development Program and United Nations Statistics Division.

African Aid Landscape, Preliminary Note on Methodology, and Data Sources Used

Africa has lagged behind the rest of the world in almost every measurable aspects of development. Developed countries now enjoy a life expectancy of 75 on average and have seen unprecedented progress in the medical sciences.²² Despite such progress, the poorest twenty nations of Africa have been left behind with average life expectancy at 53, infant mortality rate at 82, child mortality rate at 130, and maternal mortality rate at 65.3.²³ The stark differences in these statistics reflect a wide range of underlying issues that must be examined closely.

With global initiatives focusing on issues such as HIV/AIDS, there has been increased focus and financial flows into Africa. Millennium Development Goals, for example, explicitly lists reduction in HIV/AIDS cases, malaria and other diseases as one of its targets and Africa has been the main recipient of funding that promote such initiatives due to high prevalence rate of HIV/AIDS, malaria and other infectious diseases.²⁴ Many high-level meetings on health-issues have also focused on the importance of improving the health conditions in Africa.²⁵

In this analysis, I have chosen twenty poorest countries of Africa, as measured by per capita GDP, out of basic intuitions about aid needs that is also substantiated by Burnside and Dollar

²² World Health Organization, 2009

²³ World Bank Development Indicators, 2009 Data. Note: Infant, Child, and Maternal Mortality rates are all shown per 1,000.

²⁴ MDG 6: Target 6A. Have halted by 2015 and begun to reverse the spread of HIV/AIDS.

Target 6B. Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it.

²⁵ United Nations. Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 3 (A/56/3/Rev.1), chap. III, para. 29. 2008.

paper on global poverty reduction and aid allocation.²⁶ Especially for developmental assistance in the health sector, the more underdeveloped the country, the more likely it is for that country to have poor health condition compared to its developed counterparts. If the objective of aid to the health sector is to improve the health conditions, then less-developed countries with poor health sector performance should receive higher amounts of aid per capita.

Working from such basic intuitions and looking at the data on net ODA received per capita for the continent of Africa, it quickly becomes evident that the countries receiving the highest amount of ODA per capita are not the countries with the lowest GDP per capita (Data Sheet 1).

For example, in both 2008 and 2009, Mayotte ranks at the top of per capita net ODA received with 2,487.2 and 2,769.5 US Dollars, respectively, while Burkina Faso, one of the poorest countries in the world, is at 61st on the list with 65.7 and 65.7 US dollars respectively.²⁷ Many articles have noted the trend in former colonizers favoring its past colonies as its preferred countries to aid, perhaps out of sense of obligation or common historical ties.²⁸

While the objective of this paper is not to examine aid allocation patterns or donor-side motives for aid allocation, it is nonetheless important to note the stark realities between the ideal and actual aid allocation.

²⁶ Burnside and Dollar, 2000.

²⁷ Given in constant 2009 US Dollars, based on the information provided by The World Bank Development Indicators. See Attached Table.

²⁸ Dollar and Alesina, 2000. Note: Mayotte became an overseas territory of France in March, 2011 but was part of the Comores Islands (another former French territory), hence the ODA

Data Sources

In this paper, ODA commitment data have been taken from OECD Creditor Reporting System (OECD CRS). Mortality rate data and other health indicators such as vaccination rate and access to prenatal care data have been taken from the World Bank Development Indicators, which has built its database from organizations such as UNICEF and WHO.

ODA Commitment for healthcare sector:

Under the OECD CRS, individual sector codes and its descriptions can be found. In this analysis, I have specifically looked at ODA commitment to health, which includes three sub-categories: General Health, Basic Health, and Population policies/Programs and reproductive health (see attached table: “CRS Categories under which health ODA is reported and definitions” for full explanations).²⁹

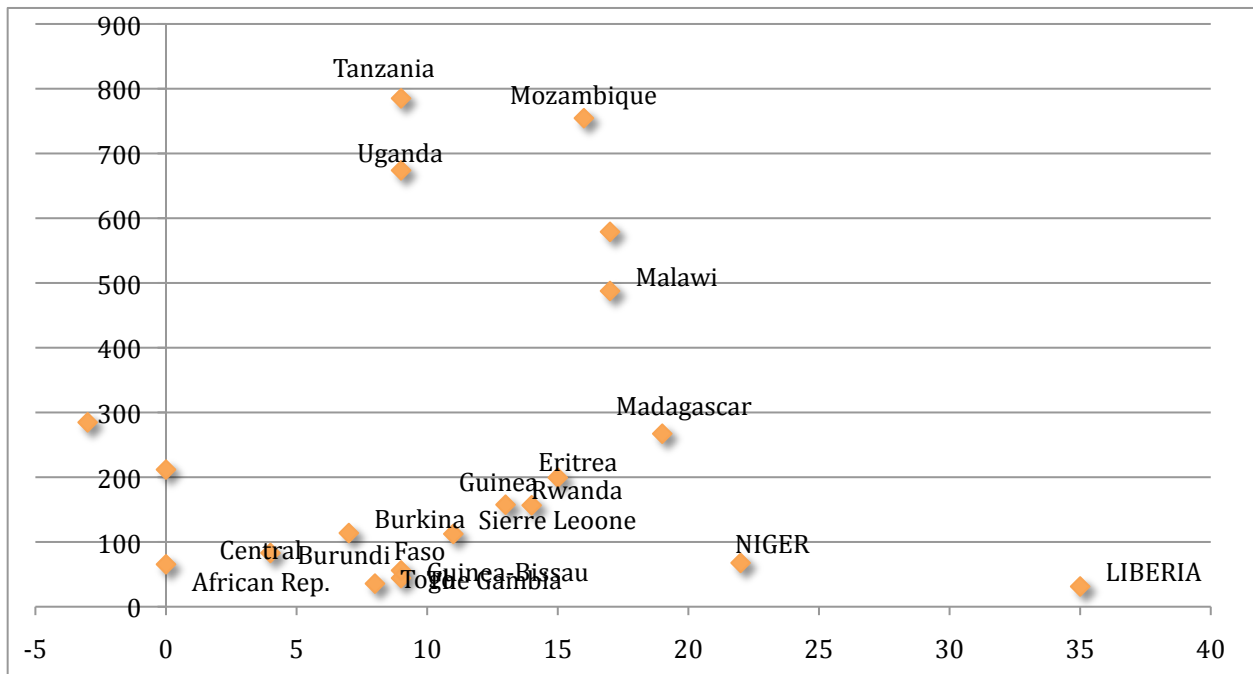
Other indicators such as life expectancy, per capita GDP, access to sanitation were all considered as a preliminary background guide to gauge the level of poverty and health. All of the aforementioned indicators for the 20 poorest countries based on per Capita GDP have been compared with the corresponding numerical values for Japan (Data Sheet 2).³⁰

²⁹ OECD CRS, 2010.

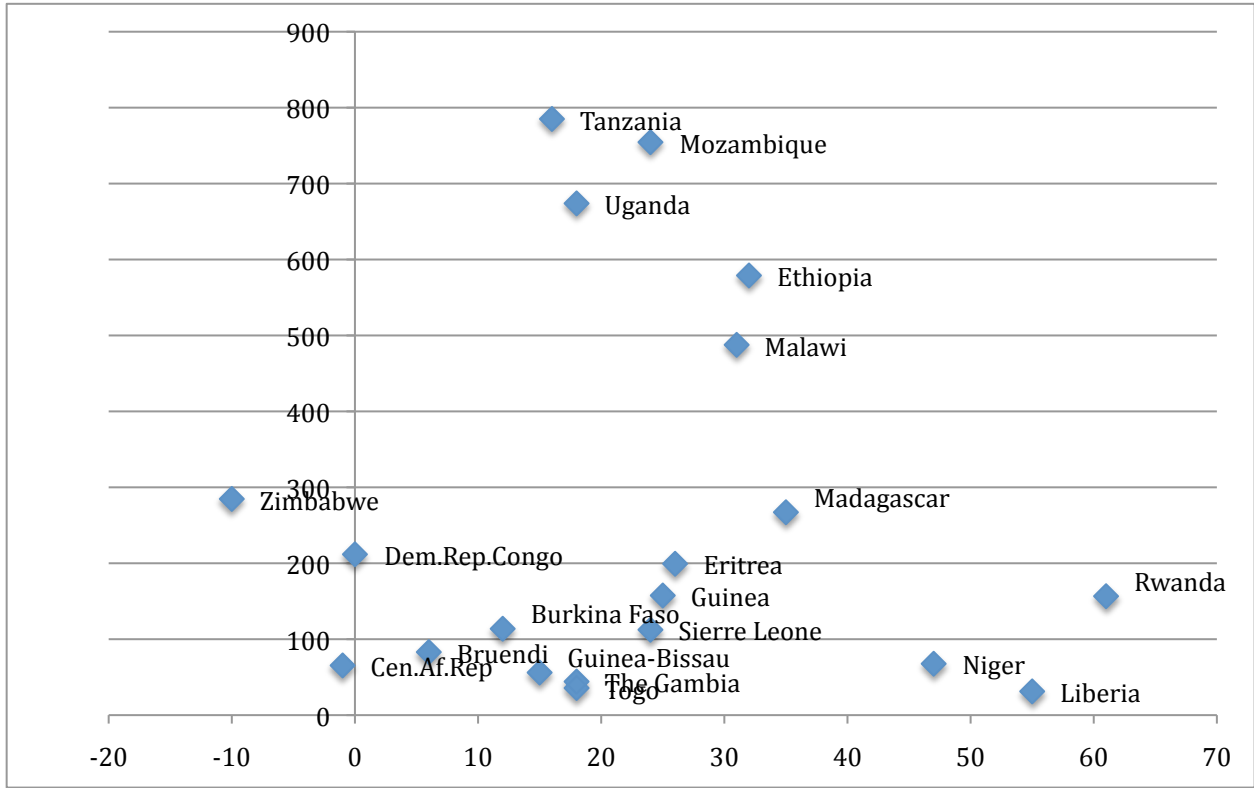
³⁰ Note: All data for this data set is based on 2009 numbers with constant 2009 US Dollars for per capita GDP and mortality rates are shown in per 1,000 figure.

Analysis

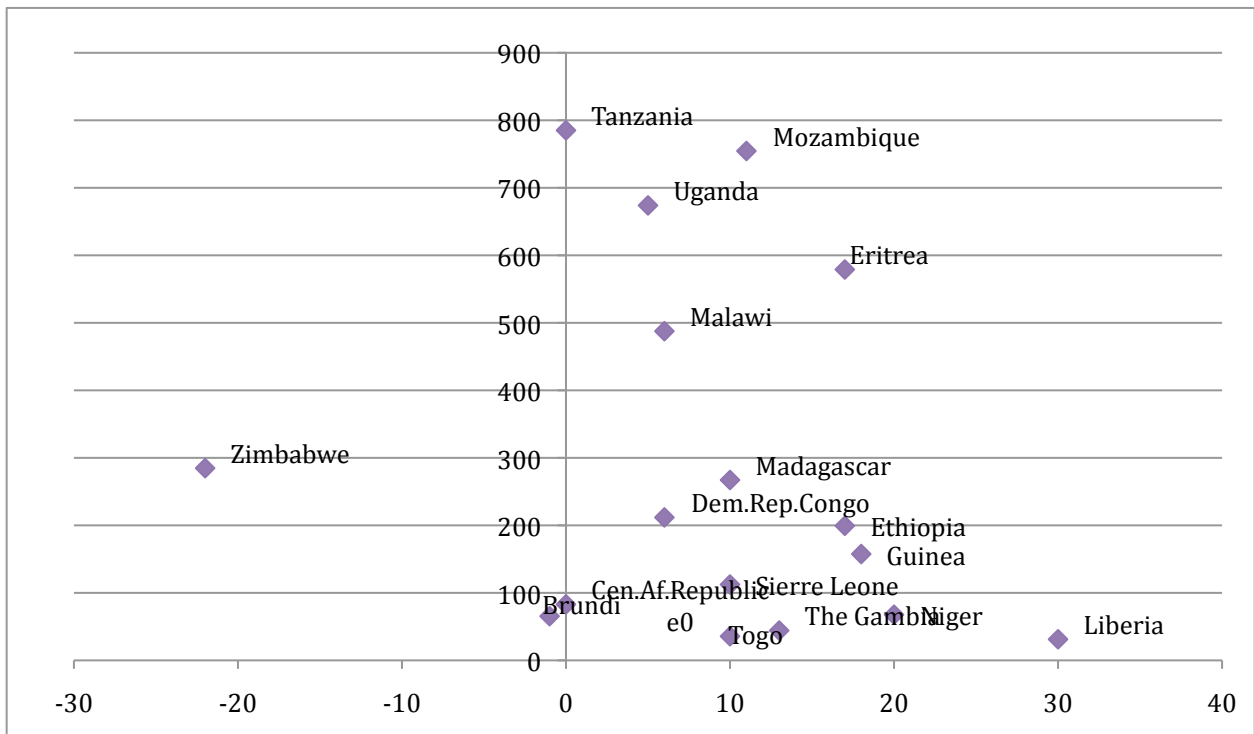
In order to assess the impact of aid on key mortality rates, I have obtained the mortality rate data for the years 1995 and 2000, the most recent years in which *both* the mortality and aid commitments to the health sectors are available. For the poorest twenty nations examined, I have noted the improvement in the mortality rates (mortality rate of 1995 minus mortality rate of 2000), and compared the number to the *sum* of aid to the health sector in the same time frame.



Scatter Plot 1: Infant Mortality Rates (x-axis: improvement in infant mortality; y-axis: sum of ODA between 1995-2000), data from OECD CRS.



Scatter Plot 2: Child Mortality Rates (x-axis: improvement in child mortality; y-axis: sum of ODA between 1995-2000), data from OECD CRS.



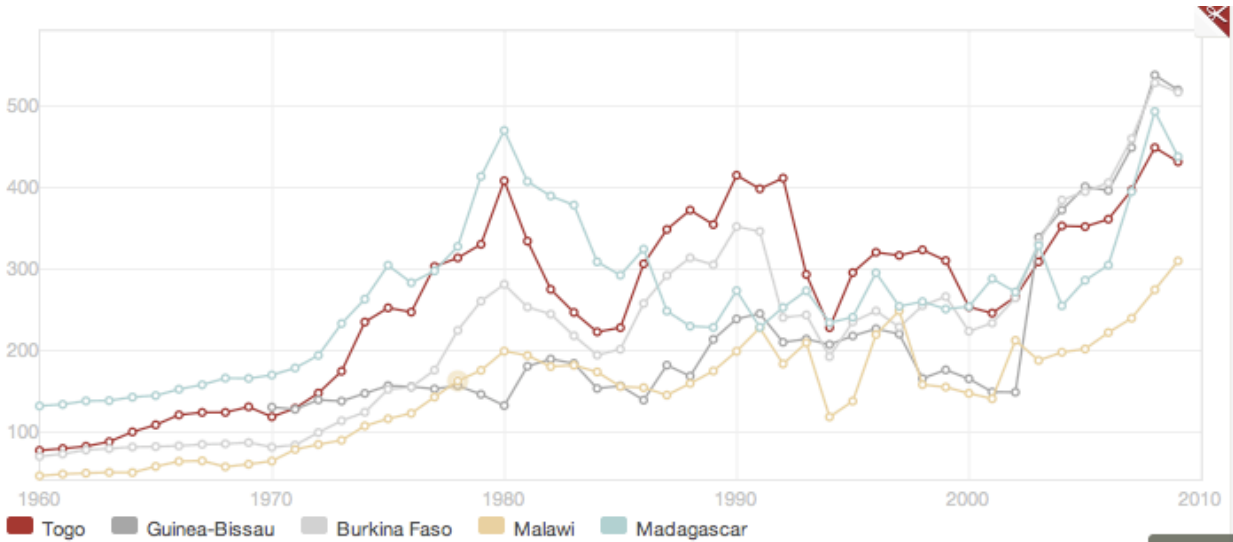
Scatter Plot 3: Maternal Mortality Rates (x-axis: improvement in maternal mortality; y-axis: sum of ODA between 1995-2000), data from OECD CRS.

From the 20 countries analyzed in this study, there seems to be no overt correlations between ODA to health and health outcomes as measured by infant, child and maternal mortality rates – some countries such as Democratic Republic of Congo, Zimbabwe, and Central African Republic have received high amounts of ODA to health, relative to other countries in this analysis, and yet, have failed to improve their health outcomes in the years analyzed. In fact, Zimbabwe and Central African Republic have both slipped in all three of the mortality rates. On the other hand, countries such as Liberia, Rwanda, and The Gambia have improved dramatically in the three mortality rates despite relatively low levels of ODA to health.

However, the aforementioned countries and their relative position of the mortality rates for the years 1995 to 2000 can easily be explained through external factors such as independence movements and internal conflicts. For example, Zimbabwe has seen deteriorating conditions due to chaotic domestic politics characterized by civilian unrest that can account for the decline in health metrics during the years examined. Looking at its history, the economic and political instability after its independence has contributed to high unemployment, hyperinflation and food crisis, which can all contribute to the health of the people directly. Similar explanations can be offered for Rwanda and Liberia, where the time period analyzed roughly coincides with their emergence from deadly internal conflicts.

This alone cannot constitute meaningful findings. Looking past these cases with notable external factors, there seems to be no significant relationship between aid to the health sector and reduction in mortality rates.

Besides the countries mortality rates and the total sum of aid received in the years 1995 to 2000, a factor that seems to have a high correlation between the key health indicators is increased per capita GDP. This finding alone is intuitive – richer the country, the healthier and more needy the country, the more dire the health situations. This is also why the initial twenty countries analyzed are the countries with the lowest per capita GDP in the world.



Graph 1. GDP per capita in five of the top 20 poorest countries. World Bank Indicators.

To further examine the relationship between aid and development, I have picked five countries out of the initial 20 countries that have seen some improvement in its health metrics.

Furthermore, the five countries have no overt external factors such as major internal conflicts or wars that could influence health outcomes: Togo, Guinea-Bissau, Burkina Faso, Malawi and Madagascar are all some of the poorest countries in Africa based on their per capita GDP; however, in the years relevant for this analysis, mainly during 1995 and 2000, none of the five has experienced major shocks to its political system and its domestic environment were stable

relative to other nations in the same region and have also seen a general upward trend in per capita GDP.³¹

Analysis 2: Increase in per capita GDP and increased valued added in agriculture

There are several explanations – some more obvious than others – to the relationship between improved health and increased overall per capita GDP. First obvious possible explanation is that increased per capita GDP is a reflection of overall development of the country. This can mean several things. First, they were able to increase its production sector, such as agriculture and forestry, which directly increases the people’s livelihood. Increased livelihood -- through higher employment, higher real wages, more disposable income, and higher agricultural outputs of individual farmers in rural areas -- have high potential to reduce hunger and malnourishment levels. Another potential explanation, although less likely in the case of Sub-Saharan Africa, is increased healthcare spending due to increased GDP.³²

While the relationship between per capita GDP and better health may be intuitive, what’s not so obvious is the *reason* behind the increased GDP per capita.

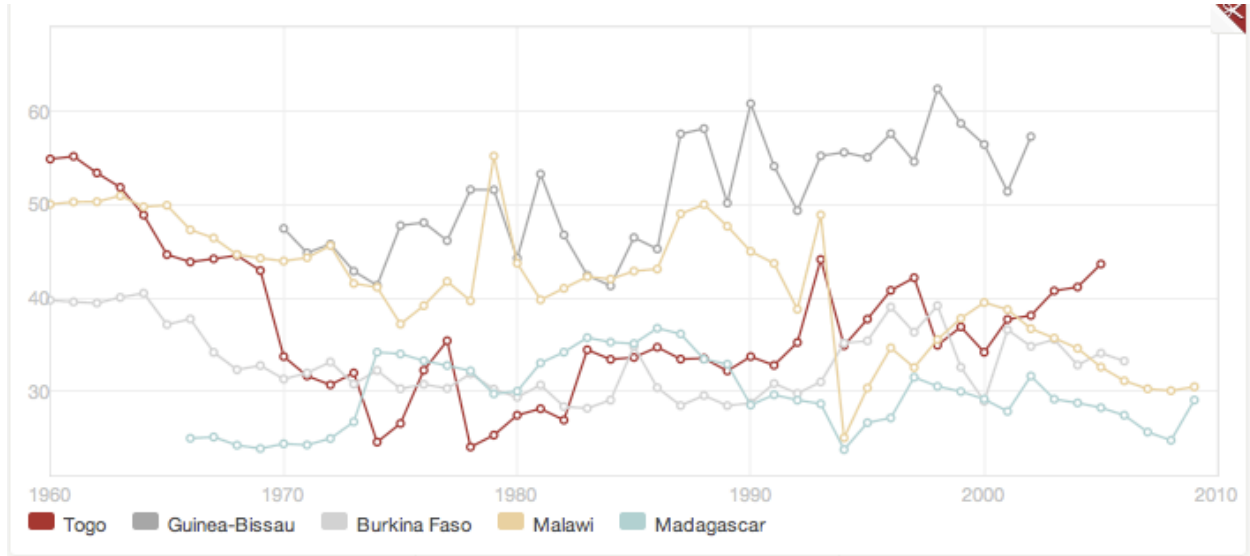
Various factors can contribute to higher productivity as measured by GDP, but one notable factor that seems to be correlated with improved health condition is value added to the agricultural sector, as a percentage of GDP. According to the World Bank Indicators, “value added is the net

³¹ Guinea-Bissau has seen coups due to inability to control its legislative election process and general discontent with the political system remains; however, widespread massacre or displacement of people was not seen. Recent political turmoil (2011) has been noted but does not affect the available data, as the most recent data available are for 2009-2010.

³² Government spending for healthcare data unavailable for the most of the countries for the years 1995 to 2000.

output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3.”³³

Despite yearly fluctuations in value added to the agricultural sector, as percentage of GDP, there is generally an increasing trend in value added to agriculture in five of the African nations examined. Particularly between the years of 1995 to 2000, all countries have seen increase in value added, with Togo only showing minimal change due to large fluctuations in the 1990s.



Graph 2. Value Added to Agriculture (% GDP), five of the top 20 poorest countries. World Bank Indicators.

So far, I have attempted to explore the relationship between health sector ODA and health outcomes in Sub-Saharan Africa through the use of key health metrics -- infant mortality rate, child mortality rate, and maternal mortality rate. From my initial hypothesis that ODA to health sector has direct impact in reducing mortality rates, I have examined the reduction of mortality rates and the amount of ODA health sector aid received in the period of 1995 to 2000. It has

³³ The World Bank Development Indicators, 2010.

become evident that there seems to be little to no direct correlation between the amount of health aid a country receives and their ability to reduce key mortality rates. What has become evident is that higher per capita GDP through increased productivity can partially explain the reduction in mortality rates.

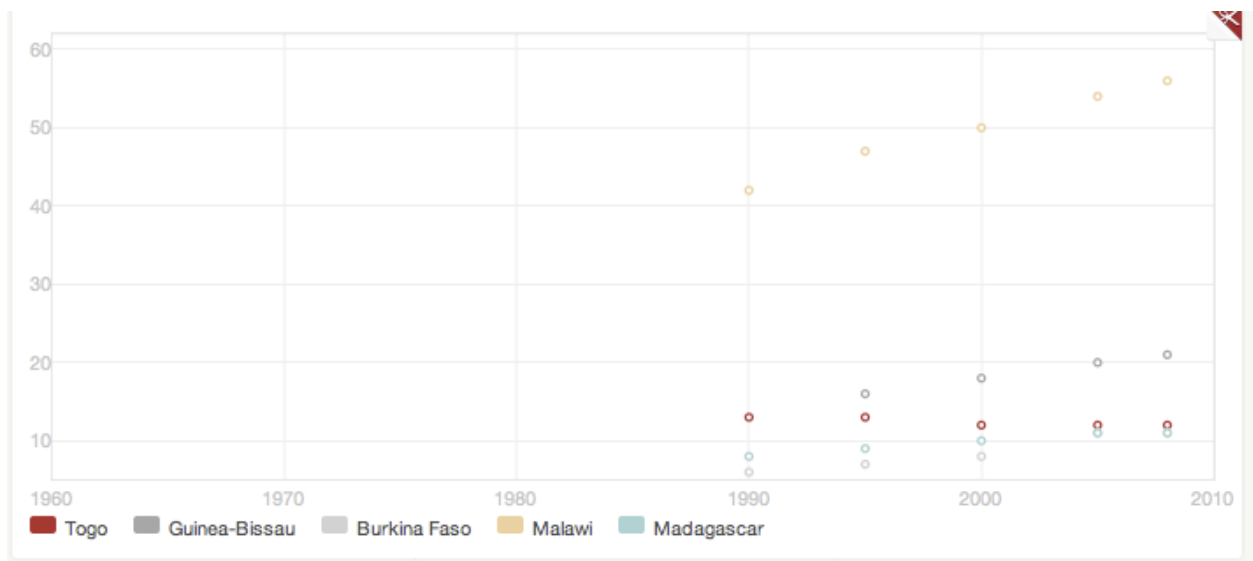
While there may not be direct correlation between health care ODA, perhaps certain initiatives such as increased vaccination rates may be indirectly attributed to increased funding for the healthcare sector. While it is impossible to directly link increased vaccination or higher contraceptive use to health-sector aid alone, it is worth noting the relationship between such potential factors and reduction in mortality rates.

Other Factors: What other factors explains mortality rates in Africa?

With that being stated, the next obvious question is: what are other factors that can account for the reduction in mortality rates in the least developed countries of Africa? In the following section, I will outline some of the health issues pervasive in Africa and look at the potential donor-side interventions that may reduce the key mortality rates. Some of the factors considered are: improved access to sanitation, increased vaccination rates, increased use in contraceptives, access to prenatal care, and births attended by skilled personnel.

Access to sanitation

Access to safe water, as defined by the World Bank is “measured by the number of people who have a reasonable means of getting an adequate amount of water that is safe for drinking, washing, and essential household activities, expressed as a percentage of the total population.”³⁴



Graph 3: Improved sanitation to sanitation facilities (% of population with access). World Bank Indicators.

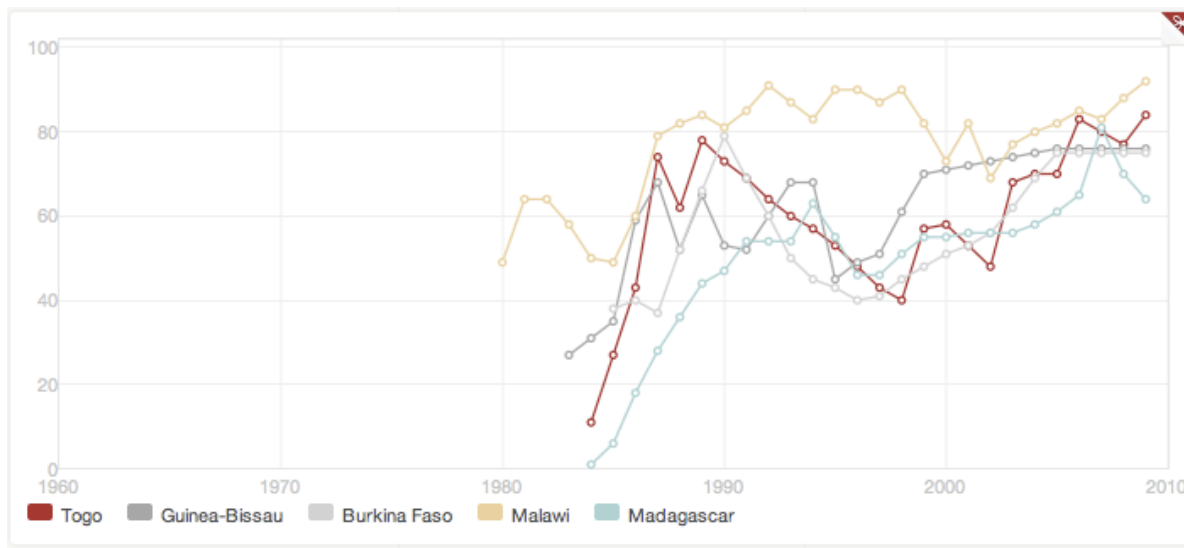
In the five nations examined, access to sanitation has improved slowly for the years where data is available. Malawi, despite its status of having the worlds fourth lowest per capita GDP has higher percentage of population with access. Malawi received \$50.60 constant USD in developmental aid per capita of which \$34.81 went to the health sector. Perhaps other sector aid such as infrastructure aid may account for the major difference between the sanitation access rate between Malawi and the other four countries.

³⁴ The World Bank Group, Development Education Program, descriptions of indicators available online < <http://www.worldbank.org/>>

Vaccination Rates

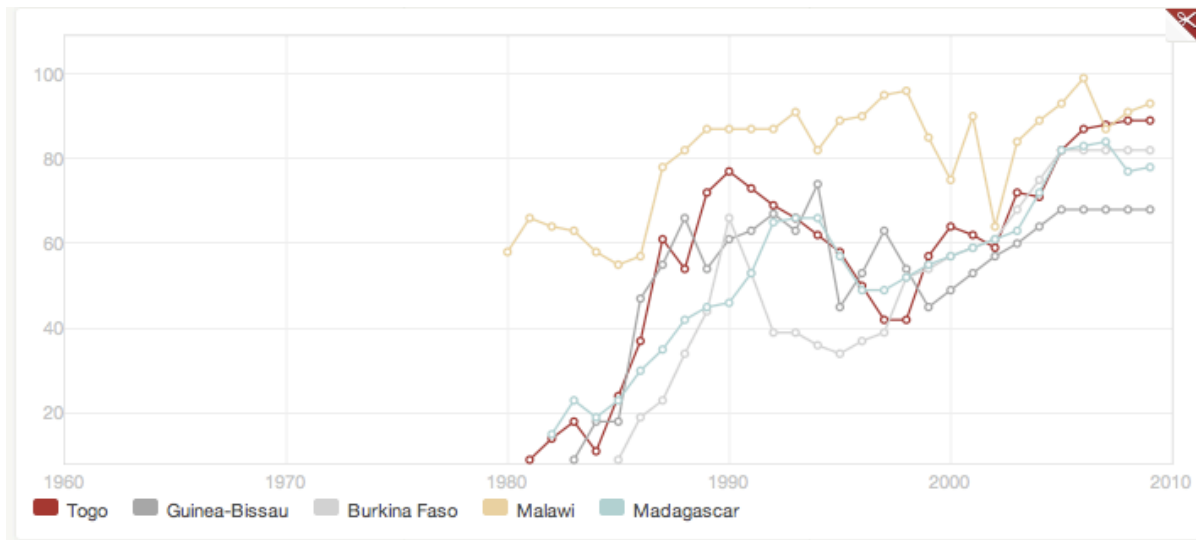
Vaccines can prevent many illnesses that are common in the developing world. According to the WHO and UNICEF, Child immunization rate measures the percentage of children between 12-23 months who received vaccinations before 12 months or at any time before the survey. A child is considered adequately immunized against diphtheria, pertussis (or whooping cough), and tetanus (DPT) after receiving three doses of vaccine.³⁵

Two vaccination rate data are available from The World Bank Development Indicators – measles vaccination rates and diphtheria vaccination rates. In both of the graphs indicating vaccination rates, there's a positive upward trend with marked increased in vaccination rate for all countries starting in 2000. Drop in vaccination rate in the mid 1990s may be accounted for by domestic political instability and corruption that may have taken away the funding necessary for widespread availability of vaccines.



Graph 4: Immunization, Measles (% of children ages 12-23 months). The World Bank Indicators.

³⁵ WHO and UNICEF online data.

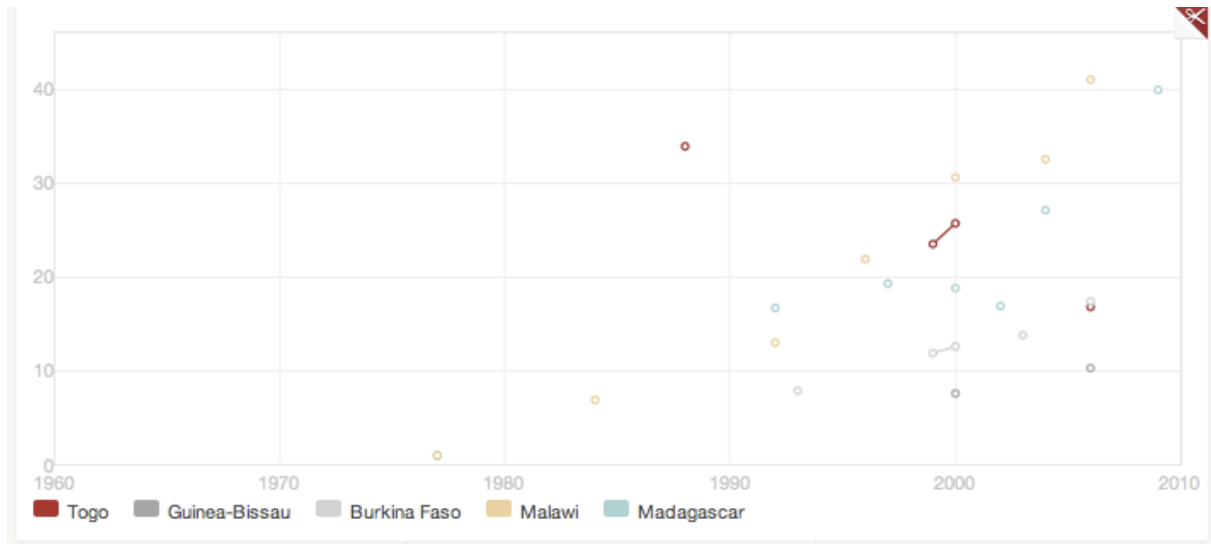


Graph 5: Immunization, DPT (% of children ages 12-23 months). The World Bank Indicators

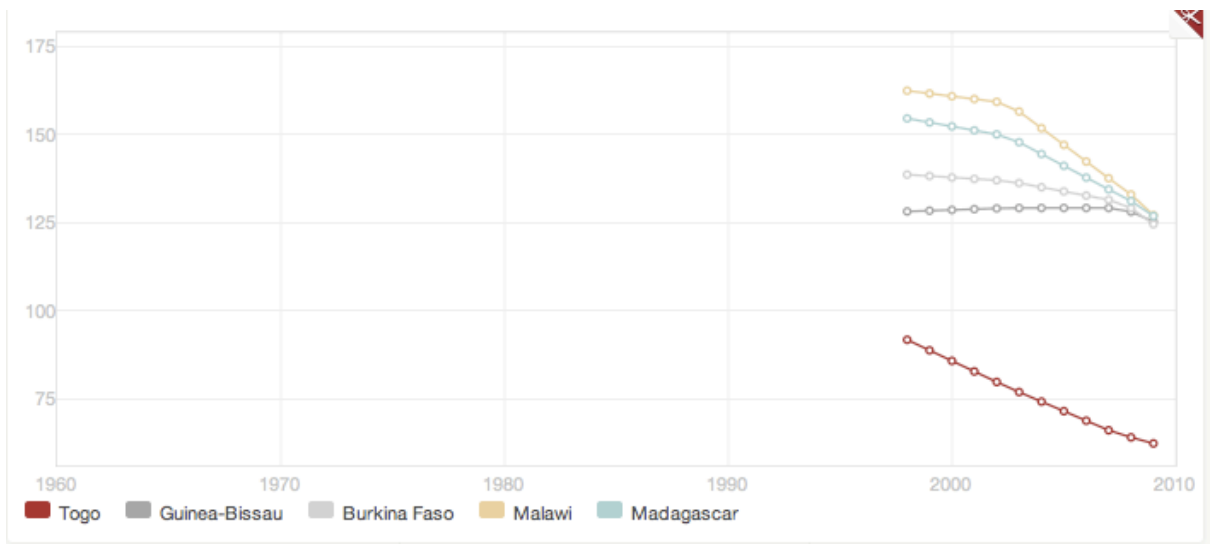
Use of Contraceptives/Family Planning, Adolescent Fertility Rate

Often times, family planning measures can assist in families where added child to the family also increases the financial burden. Furthermore, family planning can directly decrease maternal mortality rate by reducing birth rate and thereby avoiding dangerous childbirth. Adolescent fertility rate is also a good measure of general family planning policies, as one of the major aims of family planning is to promote birth after adolescent age, as adolescent pregnancy is often linked to higher maternal mortality.

As defined by the United Nations Population Division, Adolescent fertility rate is the number of birth per 1,000 women ages 15-19.



Graph 6: Contraceptive Prevalence (% Women ages 15-49). The World Bank Indicators

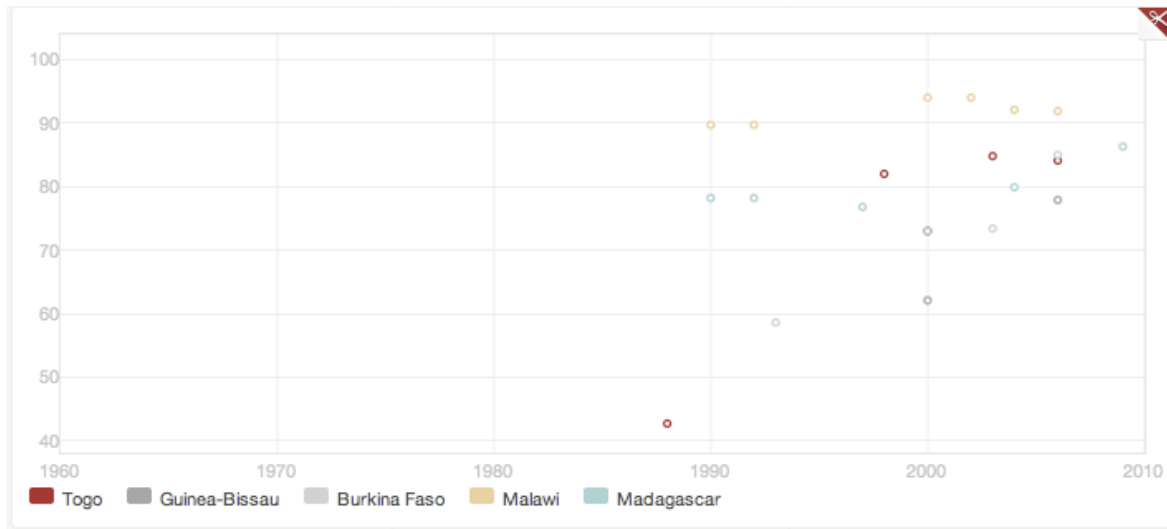


Graph 7: Adolescent Fertility rate (births per 1,000 women age 15-19). The World Bank Indicators

Access to Prenatal Care

Perhaps, one of the reasons why infant and maternal mortality rates have been high in Africa is due to its inattention to prenatal care. Early access to prenatal care can prevent mother-to-child transmission to HIV and medical guidance can also reduce complications during pregnancy. As defined by the State of the World's Children and UNICEF: Pregnant women receiving prenatal

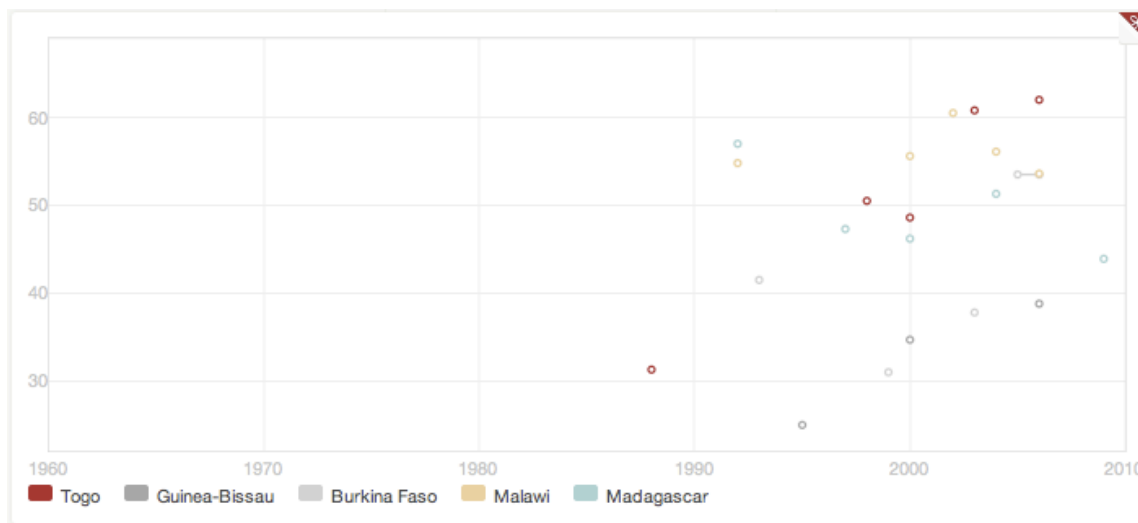
care are the percentage of women attended at least once during pregnancy by skilled health personnel for reasons related to pregnancy.



Graph 8: Pregnant women receiving prenatal care (%), The World Bank Development Indicator

Births Attended by Skilled Personnel

As defined by the World Bank: “Births attended by skilled health staff are the percentage of deliveries attended by personnel trained to give the necessary supervision, care, and advice to women during pregnancy, labor, and the postpartum period; to conduct deliveries on their own; and to care for newborns.”



Graph 9: Births attended by skilled health staff (% of total), The World Bank indicators

Health Issues remain a major challenge

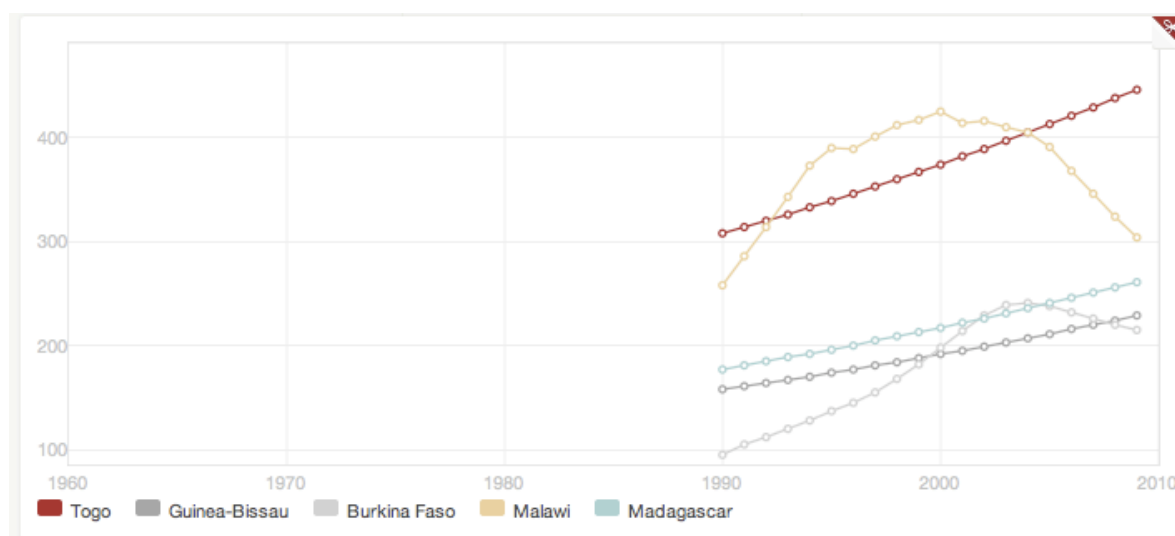
HIV/AIDS, Tuberculosis, Malaria

Since the emergence of HIV/AIDS in 1983, there has been an awareness of HIV/AIDS and co-morbid health issues. Particularly in Sub-Saharan Africa, where the infection rates are among the highest in the world, global initiatives such as the Global Program on AIDS(GPA) have been implemented to combat the devastating effects. While global attention and the subsequent financial flows for such initiatives should be lauded, the vertical HIV/AIDS approach also had negative influence on primary health care available in many of the recipient countries. Large globally funded initiatives often shift the available domestic resources from other issues such as primary health care to HIV/AIDS programs.³⁶

³⁶ Druce N, Dickinson C, Attawell K, et al. Strengthening linkages for sexual reproductive health, HIV and AIDS: progress, barriers and opportunities for scaling up. London, UK: DFID Health Resource Centre, 2006. Available at: http://www.dfidhealthrc.org/publications/HIV_SRH_strengthening_responses_06.pdf.

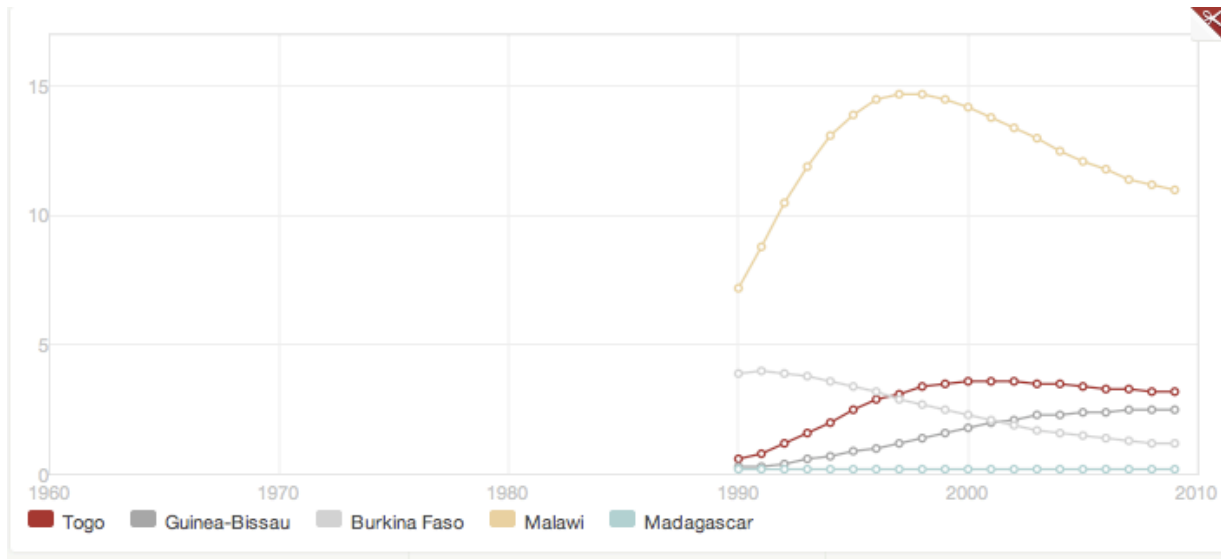
It has been noted in some studies that measles and HIV/AIDS account for 50% of the under-five mortality rate, while 75% of neonatal deaths are due to pre-maturity, infection, asphyxia, congenital malformation, and tetanus, all of which can be prevented and treated with appropriate medical regimens in the developed world.³⁷

Despite the generally positive trend in vaccination, access to sanitation, birth attended by trained personnel, access to contraceptives and prenatal care, HIV/AIDS and other infectious diseases, malnourishment rate and extreme poverty remain major challenges in improving the overall level of health in Africa. Examining the same five nations analyzed above, we can see that tuberculosis and HIV/AIDS prevalence have not decreased dramatically.



Graph 10: Tuberculosis rate, total (% of population ages 15 – 49). Data only available from 1990. The World Bank Indicators

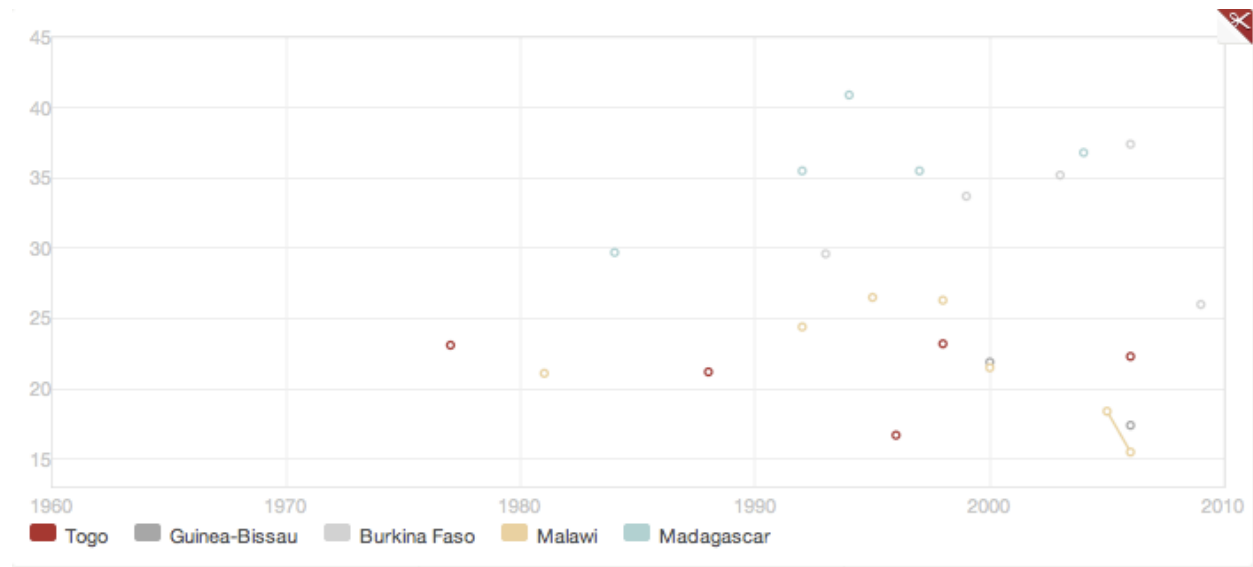
³⁷ UNICEF. The state of the world’s children 2008: child survival. New York: United Nations Children’s Fund (UNICEF), 2007. Available at: <http://www.unicef.org/sowc08/docs/sowc08.pdf>.



Graph 11: HIV/AIDS Prevalence rate, total (% of population ages 15 – 49). Data only available from 1990. The World Bank Indicators

Malnourishment/Starvation

Extreme poverty and famine remains around the world, but affects a disproportionate number of people in Sub-Saharan Africa. Food security remains a major challenge for many African countries and children pay the price in stunted growth and inadequate body weight. World Bank Indicator for prevalence of child malnutrition is the percentage of children under age 5 whose weight for age is more than two standard deviations below the median for the international reference population age 0-59 months.



Graph 12: Malnutrition prevalence, weight for age (% of children under 5). The World Bank Indicators

High fertility rate and maternal mortality

Maternal mortality rate, as defined as number of maternal death per 100,000 live births, remains in much of the developing world, but have remained especially high in sub-Saharan Africa.³⁸ A number of ways in which maternal death rate can be reduced have been documented, but assistance method most favored by the donor-country is family planning, mostly due to its relative ease in implementation.³⁹ Family planning programs contribute to reducing maternal mortality by reducing the number of births, especially high-risk births, and thus, reducing the number of times a woman is exposed to the risk of mortality.⁴⁰

³⁸ For the purposes of this paper, I have noted maternal mortality rate as calculated per 1,000 to match the infant and child mortality rate data.

³⁹ United Nations Population Division. 2005. World population prospects: The 2004 revision. New York: United Nations

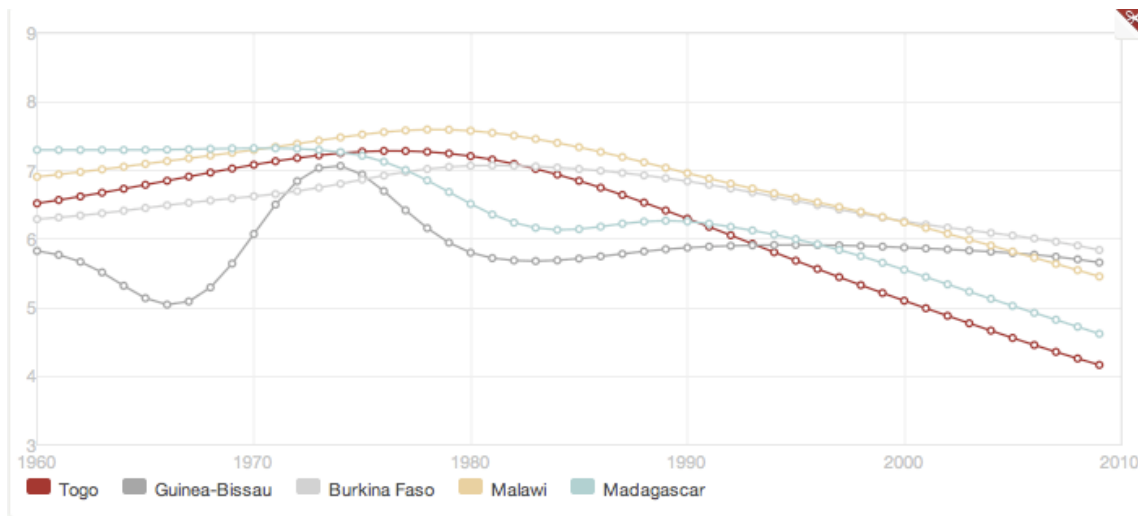
⁴⁰ Strover, J., and Ross, J. 2010. How increased contraceptive use has reduced maternal mortality. *Maternal Child Health Journal*. 14. 688 – 695.

World Bank notes:

In recent decades many countries worldwide have made important progress in lowering fertility rates, with far-reaching consequences in improved health, education, employment, and social protection.⁴¹

Within the five countries analyzed for this study, the fertility rates have steadily declined but are much greater than the developed world with recent figures showing 4.2 average children per woman in Togo, the lowest of the five countries.

Fertility as defined by the World Bank represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates.⁴²



Graph 13: Fertility rate, total (births per woman). The World Bank Indicators

⁴¹ Review of World Bank Assistance to Family Planning in 35 High-Fertility Countries: 1994 – 2008. The World Bank. 2010.

⁴² United Nations Population Division, 2009

Part II: Limitations

In this section, limitations of the case study method presented in this paper will be examined.

Methodology and Data

In analyzing the impact of healthcare sector aid, and the subsequent exploration on the various factors that may influence mortality rates have been met with major obstacles. One of the biggest obstacles was due to the lack of accurate and consistent data. For example, for the mortality rates, almost all the countries examined lacked annual data – the data is only collected every five years, which made the analysis difficult. Thus, only the changes in (as indicated as improvement in) mortality rates could be analyzed in the years 1995 to year 2000. The lagged five-year data may be acceptable for econometrics studies; however, in a case study method, the explanatory sweep of what may have happened in the years with no data could be a limiting the scope of analysis.

Second obstacle with regard to the data is with the analysis of healthcare sector aid and its impact during the period of 1995 to 2000. While I have used a simple summation of healthcare sector ODA inflows, that number alone cannot capture the breadth of available assistance. In most papers, per capita ODA is used to assess the funds available for developmental assistance. However, when analyzing the aid inflows form 1995 to 2000, due to changes in population, per capita ODA could not be calculated. Therefore, analysis of health sector aid and the subsequent impact on mortality rates during the period of 1995 to 2000 lacks the explanatory power of

traditional econometrics analysis. Similarly, by using only twenty poorest countries limited the level of analysis.

Another major limitation is related to the above consideration. Many of the countries within the twenty poorest countries are poor for reasons that directly affect data analysis. Countries such as Zimbabwe, Central African Republic and Liberia have all suffered from widespread instability. The direct link between socio-political instability and health outcomes is hard to establish, but basic intuition suggests that underdeveloped, politically instable states cannot provide basic needs for its citizen for reasons such as lack of financial resources and destroyed public infrastructure.

Complex Systems: Healthcare Sector and International Aid Architecture

One of the difficulties in analyzing the efficacy of aid to healthcare is the sheer complexity of the health sector itself.⁴³ Even if there were to be a standardized metric of health care sector aid predetermined definition efficacy, analyzing how and why the aid is effective is often difficult to pinpoint. Dodd, et. al., states, “Complexities in the aid architecture for health mirror the complexities of the sector itself. Creating and sustaining population health; providing financial protection from the consequences of ill-health; and managing, financing and governing the health system are all difficult and costly.”⁴⁴

International aid architecture has changed dramatically in the past few years with an increasing role of new actors such as private foundations and small to mid-sized NGOs entering the scene.

⁴³ Dodd, et al., 2007

⁴⁴ Ibid.

Furthermore, many private-public partnerships exist not just for healthcare sector aid, but also for many developmental projects with overlapping areas of assistance.⁴⁵

The Lawson study notes that despite over ten years of active public-private partnerships (PPPs) for development “characterized by joint planning, joint contributions, and shared risk have received mixed reviews... with some even voicing concerns about partnerships diverting resources away from proven development programs or recipients.”⁴⁶ Another concern raised against PPP in development assistance is the potential threat of donor-side job being outsourced due to corporate or private foundation interests.⁴⁷

Conclusion/Discussion

In this short paper, I have attempted to analyze the relationship between healthcare sector ODA and mortality rates in twenty African nations with the lowest per capita GDP. During the timeframe of 1995 to 2000, almost all countries analyzed have seen modest improvement in health as measured by infant, child and maternal mortality rates. In countries where the improvements were large, they only appeared so due to initial mortality rates being low due to external factors such as civil wars and conflicts. Overall, most countries have seen improvement in the five-year time span but such improvement cannot be directly attributed to healthcare sector aid alone. One obvious factor that was common in all countries that exhibited improvement was increased per capita GDP.

⁴⁵ Lawson, 2011.

⁴⁶ Ibid.

⁴⁷ McLaughlin-Johnson, 2009

In examining the factors that may help improve the livelihood and health of the people, I have turned to value added to agriculture as a percentage of its total GDP. The reasoning behind this is also intuitive and backed by common knowledge of agrarian societies in its developing stage.

Many developing countries with low GDP output in the industrial or trade sector rely heavily on agricultural sector as its main production sector. In the Least Developing Countries (LDCs), as defined by the United Nation, as much as 80% of the population can be engaged in the agricultural sector and majority of their export may depend on agricultural products, including fishery and forestry.⁴⁸

Perhaps, aiding the sectors that promote value-added to the society and thereby increasing the productivity of the people may be beneficial for low developing countries with high working population in agriculture. Aiding people in the agricultural sector also has an added benefit that is again, intuitive – if small-scale farmers in rural areas are the basis of an agrarian society, in which most LDCs are, then aiding the people directly contributes to increased foodstuff available for people residing in rural areas, where extreme poverty and malnutrition strike disproportionately in developing countries. Not so surprisingly, many DAC donors distribute agricultural aid along with rural development aid (classified under multi-sector aid) for this very reason.⁴⁹

⁴⁸ United Nations Development Program and the World Trade Organization

⁴⁹ OECD Analysis of Aid to Agriculture, 2009

I have also attempted to explore other factors that may contribute to high mortality rates in Sub-Saharan Africa. In doing so, I have again turned to the five selected countries out of the initial twenty to see the trends in common health care indicators from the World Bank Indicators. Because there are various causes of mortality rate and general ill-health in Sub-Saharan Africa, looking at health sector aid and trend in indicators alone are most likely not fruitful in formulating effective developmental aid assistance programs.

With that being said, some of the health issues that remain rampant in sub-Saharan Africa are: communicable diseases resulting from poor living conditions such as common bacterial or viral diarrheal diseases; malnutrition and extreme hunger that can potentially weaken the immune system, particularly in young children, diseases such as tuberculosis and HIV/AIDS; high maternal mortality rate due to high adolescent birth and more generally, high fertility rates; lack of infrastructures such as access to sanitation and clean water source for drinking; and general lack of medical assistance.⁵⁰

It is evident that there are numerous factors that contribute to poor health performance cannot be addressed by a simple increase in sector-based aid – it is clear that all of the health issues must be addressed from different angles in an integrated manner for maximum impact. One interesting example is the donor-side assistance for reproductive health. As noted in the preceding paragraphs, various reproductive health issues are implicated in the discourse of developmental assistance – from providing prenatal care to assisting childbirth needs in high HIV/AIDS community, many activities fall under the category of “population and reproductive health” of OECD CRS categorization for health sector aid.

⁵⁰ United Nations Population Division, 2005, UNICEF

One well-documented way of reducing maternal mortality rate is through family planning. As evident from Graph 13, high fertility rates in Africa exposes pregnant women to the risks of childbirth in an already high health-resource-need continent. Causes of maternal death can vary but hemorrhage has been identified as one of the major reasons.⁵¹ Logically speaking, if women do not give birth, they are not exposed to the associated causes of death. From this, it seems logical to conclude that developmental assistance in the healthcare sector that inhibit pregnancy can positively impact maternal death – after all, reduced pregnancies means reduced births and the potential complications that can come along with it.

This line of thought, however, seems fundamentally flawed. Of course, the aid community has no power to enforce family planning or contraception; however, the underlying logic seems overly paternalistic and even repugnant. The purpose of this paper is not to argue against established aid implementation strategies; nonetheless, it seems appropriate to note the implications of the aid communities' potential power in enforcing and funding projects that promote “family planning.”

With international aid architecture rapidly changing due to new actors such as privately funded organizations, coordination among the different donor-side actors and relevant recipient-side stakeholders is crucial in maximizing the potential impact. While Public-Private Partnerships (PPPs) and sector-wide approaches (SWAPs) have both been popular since the mid-1990s, more active measures must be taken to ensure ownership of individual projects and country-level assistance by both the donor-side and recipient-side actors.

⁵¹ Khan et al., 2006

Increased coordination among donor-agencies and recipient-side actors must be considered seriously. Better aid coordination has been seen as an important factor in increasing development aid effectiveness and donor-recipient accountability.^{52,53,54,55}

Especially in healthcare, where the sector itself is very complex, there seems to be an urgent need for improved communications among and within donors and recipients. Developmental assistance is not as simple as providing agricultural aid or paying for vaccines – all the stakeholders must work together within and outside the health sector for there to be a serious improvement in human life.

⁵² Cassen, 1986.

⁵³ Buse and Walt, 1997

⁵⁴ World Bank, 1998

⁵⁵ Ericksson, 2001

References

- Alesina, Alberto & Dollar, David, 2000. " Who Gives Foreign Aid to Whom and Why?," *Journal of Economic Growth* 5(1): 33-63.
- Beynon, Jonathan. 2003. "Poverty Efficient Aid Allocations - Collier/Dollar Revisited," Working Papers 2, Economics and Statistics Analysis Unit (ESAU), Overseas Development Institute.
- Bigsten, Arne and Soderbom, Mans. 2005. "What have we learned from a decade of manufacturing enterprise surveys in Africa ?," Policy Research Working Paper Series 3798, The World Bank.
- Burnside, Craig and Dollar, David. 2000. "Aid, policies, and growth," *American Economic Association* 90(4): 847-868.
- Buse K, Walt G. 1997. An unruly melange? Co-ordinating external resources to the health sector: a review. *Social Science and Medicine* 45(3): 449–63.
- Collier, Paul and Dollar, David. 2002. "Aid allocation and poverty reduction," *European Economic Review*, 46(8): 1475-1500.
- Dodd, Rebecca and Hill, Peter. 2007. "Aid Effectiveness and Health (Making Health Systems Work)," Working Paper No. 9. World Health Organization.
- Easterly, William; Levine, Ross; and Roodman, David. 2003. "New Data, New Doubts: Revisiting 'Aid, Policies, and Growth'," Working Papers 26, Center for Global Development.
- Eriksson, J. 2001. "The Drive to Partnership," Aid Coordination and the World Bank. The World Bank.
- Foster, Mick and Leavy, Jennifer. 2001. "The choice of financial aid instruments," Working Paper 158. Overseas Development Institute.
- Hales, Simons; Howden-Chapman, Philippa; Salmond, Clare; Woodward, Alistair; Mackenbach, Johan. National infant mortality rates in relations to gross national product and distribution of income. *The Lancet* 354: 2047.
- Khan KS, Wojdyla D, and Say L, 2006. " WHO analysis of causes of maternal death: a systematic review," *Lancet* 367(9516):1066–74.
- Lawson, Marian. 2011. "Foreign Assistance: Public-Private Partnerships (PPPs)," Congressional Research Service.

McLaughlin-Johnson, Afiya, 2009. "Partnerships with Extractives Industries: Lessons learned," USAID Alliance for Innovation Newsletter.

Mishra, Prachi and Newhouse, David, 2009. "Does health aid matter?," *Journal of Health Economics* 28(4): 855-872.

Mogedal S et al. 1995. Health sector reform and organizational issues at the local level: lessons from selected African countries. *Journal of International Development* 7(3): 349–67.

Mosley, Paul. 1986. Aid-effectiveness: "The micro-macro paradox." *Institute for Development Studies* 17(2): 22 - 27.

Mwalali, Phillip and Ngul, E. 2009. "Reduction in Maternal and Child Mortality in Sub-Saharan Africa: The Yo-Yo effect in Delivering on the Promises" *Journal of Health Care for Poor and Under-served* 20(4): 149 - 69.

Schacter, Mark. 2001. "The heart of the matter: donors, development assistance, and public sector reform," Policy Brief 10. Institute on Governance, Ottawa, Canada.

Stover, John and Ross, John. 2010. "How Increased Contraceptive Use has Reduced Maternal Mortality" *Journal of Maternal Child Health* 1(4):87–129.

"The state of the world's children 2008: child survival," 2007. United Nations Children's Fund Report, Available at: <http://www.unicef.org/sowc08/docs/sowc08.pdf>.