BACHELOR THESIS

Attaining improved health care indicators in Southern Africa: An evaluation of Official Development Assistance to Mozambique and Botswana

International Bachelor Economics and Business Economics
Ashleigh Woodend
328852

Erasmus School of Economics
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Abstract

The aid debate continues to remain largely unsolved and many vehemently hold that it is a destructive, as opposed to effective, method for promoting development. Given this debate, and the increased trend towards a more focused approach of disbursing aid funds, a country-specific investigation into the effectiveness of health care aid could shed some light on whether sector-specific aid is effective, and whether its effects, if any, differ from country to country. This study will do exactly that, by assessing whether health care aid disbursed to Botswana and Mozambique is effective in improving health conditions. The main theories used to explain aid are Utilitarianism, Diminishing Marginal Utility of Wealth and Rosenstein-Rodan's 'Big-push' theory. Utilitarianism is a normative philosophy that supports the redistribution of goods/wealth, so long as such a re-allocation promotes the social benefit. Diminishing Marginal Utility of Wealth is used to show that the marginal utility of money in the developed world is much lower –due to its relative abundance- than that in the developing world, and so wealth should be transferred to the poor, as they will benefit comparatively more from it. Finally, the 'Big-push' theory states that in order for industrialization, development and growth to occur, there must be some initial financial impetus that can spur on investment and allow for positive spillover effects to disperse from industry to industry. These three theories have led to the hypotheses that higher health aid improves health indicators and that health aid is more effective in countries with higher levels of safety and rule of law. Using Two-Stage-Least Squares and controlling for reverse causality, GDP growth and population density, the result is that health sector aid can have very slight positive effects on life expectancy, infant mortality and the levels of DPT and Measles immunization. However, often the effect of health care aid is insignificant and subject to country idiosyncrasies. In addition to this, health care aid is often shown to be significantly more effective in safe and lawful countries; nonetheless its impact even in these societies is relatively low.

Keywords: Aid, Mozambique, Botswana, Health

List of Abbreviations

FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HIPC	Heavily Indebted Poor Country
IMF	International Monetary Fund
LDC	Less Developed Country
MDC	More Developed Country
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
ODA	Official Development Assistance
SIDA	Swedish International Development Cooperation Agency
USAID	United States Agency for International Development

Research Question:

Is health sector-specific aid improving health conditions in Mozambique and Botswana?

Introduction:

Poverty and underdevelopment in Africa have continued to be the status quo of the continent despite summits, revolutions, consensuses and calls for change. Why is this? What makes Africa so different from Asia or South America, and blocks it from realizing its potential? These questions have been at the source of many investigations, and opinion differs widely on why the situation is as it is, and how it can be helped. This issue remains dominant on the international agenda because although Africa has seen accelerated growth since the mid-1990s, it still lags behind the rest of the developing world in nearly every indicator of human well being (Page, John, S. Go, Delfin, Africa at a turning point, 2008). This comes despite the fact that external assistance, and with it health-specific aid, has assumed a larger role in its development story than in any other developing region.

Much of the discussion on African development has centered around aid, and has been fraught with debate. On the one side, we have what Williamson refers to as the 'public interest argument' (William, Claudia, 2008) in which the likes of Jeffery Sachs and U2's Bono argue that aid is vital in saving Africa and so should be increased. On the opposite side we have the 'public choice hypothesis,' where economists like Dambisa Moyo, Peter Bauer and William Easterly, argue that aid should be phased out and that instead of spurring on development, it actually inhibits it. These differences of opinion arise because with approximately US$ 1 trillion having been transferred to the continent since the 1940s (Moyo, 2009), overall growth has shown a pronounced decline and corruption has become rampant. A telling example of this is the sharp difference between predicted per capita income and actual per capita income in Zambia. On the basis of World Bank calculations, Zambia -having received aid since the

1960s- should now have a per capita income of over $20,000. Instead, the country's per capita income is still only $600 (Abuzeid, 2009).

Despite these damning results, various justifications have been made for why aid should remain an integral part of our society. Firstly, the success of the Marshall Plan has been used to illustrate that foreign financial intervention can be extremely important for development and recovery. Besides this, notable economist Jeffrey Sachs states that in giving aid to Africa, the developed world gains 'security, prosperity and a noble heart'. This quote illustrates that aid has both an altruistic and economic basis. While it can be seen as a manifestation of our humanity and empathy for one another, developing the third world by way of a 'big push' to investment also means that countries that were previously financial vampires can become integral markets for trade.

Whether aid can really achieve all this remains questionable. Some of the main challenges are, (1) that the governments of receiving countries are prone to re-directing the funds to personal bank accounts; (2) official development assistance does not always go to those that most need it due to the 'pro-rich' attitudes of donors (Sachs, 2005); and (3) it is maintained that results are stifled by the 'policy incoherence[1]' (Overseas Development Institute, n.d.) of the West. In light of these issues, the aid model has shifted towards a more active and focused approach. We now have multilateral financing organisations such as the Global Fund to fight AIDS, Tuberculosis and Malaria, which pool aid and employ it to tackle certain challenges on the ground. In addition to these innovations, there has also been a strong emergence of Development-oriented Non-Governmental Organisations (NGOs).

This paper will focus more on the former, which is aid that is specifically directed towards a certain sector. The health sector is the area of choice, and is structured such that foreign donors can work to improve health conditions either indirectly through all-purpose budget assistance, or directly, with donor-sponsored assignments conducted 'on the ground.' This sector is of particular importance in the evaluation of aid because of the general consensus, as stipulated by the United Nations Development Program, that the overall objective of aid is human development. According to notable economist and Nobel Laureate Amartya Sen, 'Human development, as an approach, is concerned with what I take to be the basic development idea: namely, advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only a part of it.' As such, it is not unreasonable to assume that the basic notion of living a healthy life is one of the key constituents of human development and

[1] The adoption of policies that run counter to the objectives of aid. For instance, giving aid to support the agricultural sector in developing countries and then granting subsidies to domestic producers.

economic growth; for without health we cannot work, and without work, we cannot prosper and realize the richness of human life. In addition to this, access to health is increasingly being perceived as a human right (Dodd et al., 2007).

A further justification for focusing on the efficacy of health specific aid is that it has now grown to assume a greater proportion of overall ODA, comprising 4.6% in 1990 and coming close to 13% in 2005 (Ibid.,2007). In addition to this, the adoption of the Millennium Development Goals has given increased impetus to improve health conditions in developing countries, while the Paris Declaration of March 2002 has called for donors to give much more attention to aid alignment, harmonization, ownership, results and mutual accountability (OECD, n.d). And yet few academic studies have looked at sector-specific aid, and have instead focused on the general effectiveness of total aid on overall economic growth (Gebhard et al., 2008). As a result, the specific impacts of those aid projects not directly constructed to ameliorate economic growth have been neglected (ibid, 2008).

As mentioned above, recent years have shown an increasingly more focused aid approach, meaning that if aid is to be critically assessed, it must be measured against its intended purposes. Essentially research now needs to evaluate these targeted attempts and see if this alteration of the aid method is indeed an improvement at all. If results prove that it is, then the lives of those in the bottom billion[2] can indeed be saved through more focused monetary intervention.

In order to limit the scope of this study and capture more idiosyncratic results as opposed to average effects, two Sub-Saharan countries will be investigated: Botswana and Mozambique. These states have been chosen for various reasons, many of which are outlined in the Country profiles. The structure of this paper is as follows: In Section I, I will give background information on the health sectors and aid receipts in Botswana and Mozambique. Following this, Section II will be a literature review that summarises past findings on the efficacy of health specific aid as well aid effectiveness in general. In Section III, I will delve deeper into the theoretical basis behind aid and present my hypotheses, Section IV will be used to present the data and methodology applied in conducting this research. In Section V, I will present my findings and discuss their implications, and Section VI will be a conclusion in which the limitations of the study, and suggested routes for further research will be outlined.

[2] Those living in economies that have been stagnant for forty years and hence diverging from mankind

I: Country profiles

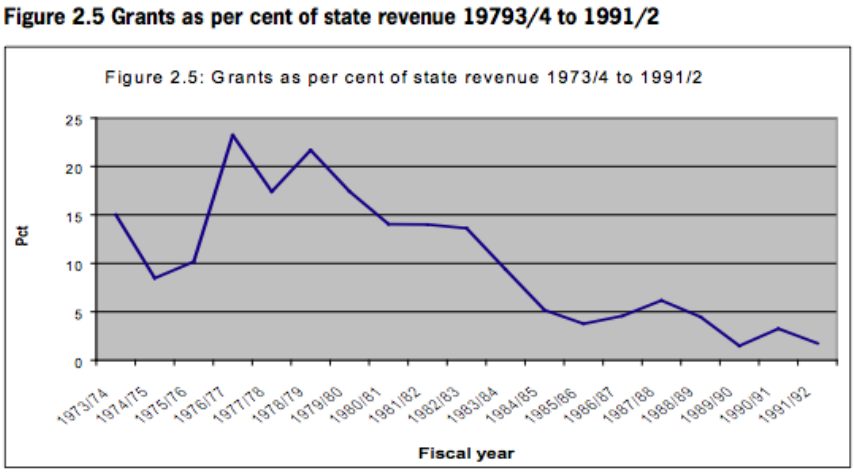
The two Southern African countries chosen for this study have been selected on the basis of country-specific characteristics that will provide diversity in looking at both health conditions and aid efficacy.

Botswana

Botswana, independent since 1966, is often viewed as an African success story given that is has shown the highest rate of per-capita growth in Africa for the last 35 years (Acemoglu, Johnson, Robinson, 2001). During the period between 2004 and 2005, its economy grew at a rate of 8%, while 2011 estimates put it at a growth rate of 6.2% (CIA World Fact Book, 2011). It is a middle-income country with a total population of 2,098,018 (CIA World Factbook, n.d.), however its poverty rates are still considerably high for a country of its economic stature. This is largely because inequality has increased and the rich have benefitted more than the poor (IPC, 2005). In the UNDP's 2005 report on Poverty in Botswana, it was stated that possibly the most important reason for this is that most of the country's GDP and exports are driven by mineral –and especially diamond- rents while only a small proportion of the labor force works in this area. A second point made by Kerapeletswe et al. in their 2008 SIDA study is that the HIV/AIDS epidemic in Botswana is also contributing to an erosion of socio-economic development; this can be illustrated by the fact that life expectancy at birth decreased from 65.2 years in 1993 to 56 years in 2007 (Kerapeletswe, Isaken, Slob & Jerve, 2008)

Surprisingly, Botswana has received relatively less cumulative aid (largely 'graduating' from aid in 1994) than the majority of other African countries, having instead received considerable foreign investment, especially in the mining sector (Ibid., 2008). Nonetheless following independence, the country was at times the largest aid recipient of all LDCs on a per capita basis (Ibid., 2008). Since 1978, its aid receipts have declined in volume (aid comprised 3% of GDP in 1997, compared to 15% between 1975-1979), leaving it ranked, as per 2008, at 23rd on the list of per capita aid recipients. As a result, its strong economic performance has largely been attributed to mineral export rents, sound governance and prudent administration, with the country having rejected some donor-financed projects that it deemed incompatible with its development strategy.

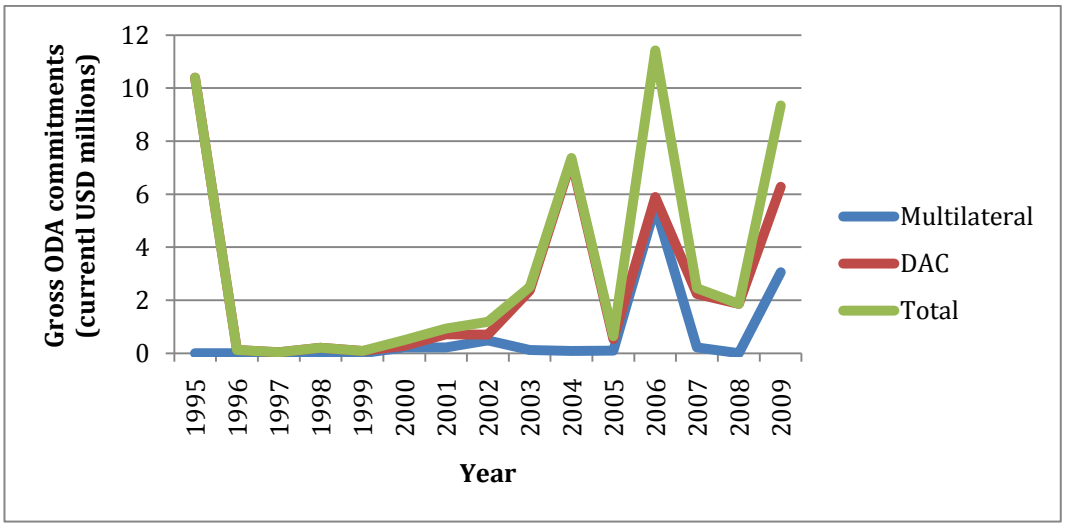
Figure 1: Grants per cent of state revenue 1973-1991



Source: SIDA publications, 2008

Botswana has seen substantial improvements in education, human development and also health, the latter being bolstered by a strong focus on improving infrastructure and personnel training. This has meant that infant mortality has fallen since 1970, however the AIDS epidemic has had a very negative impact and caused it to rise since 2000.

Figure 2: Gross Health ODA Commitments 1995-2009



Source: OECD Creditor Reporting System, 2012

Mozambique

Mozambique, independent since 1975, remains as one of the world's poorest economies and has been dubbed the 'donor darling' due to the billions of dollars it has received in foreign aid (PBS News Hour, 2010). Mozambique has seen its economic growth stunted due to high levels of emigration, a harsh drought and an extended civil war that only ceased in 1992 (CIA World Fact Book, n.d.). However, positive reforms introduced in 1987 and further bolstered by

political stability and donor support during the 1990s, have allowed for improvements in growth figures, with growth between 1997 and 2007 averaging at a staggering 9% p.a. Nonetheless, more than half of Mozambique's budget remains comprised by donor aid, (Ibid.), and poverty remains at record highs (54% of the population is below the poverty line). This comes as a result of the fact that foreign investors receive enormous tax breaks and then export profits to Europe (PBS News Hour, 2010), while the country is still heavily reliant on aluminium exports and so is vulnerable to the large swings in the metal's international prices.

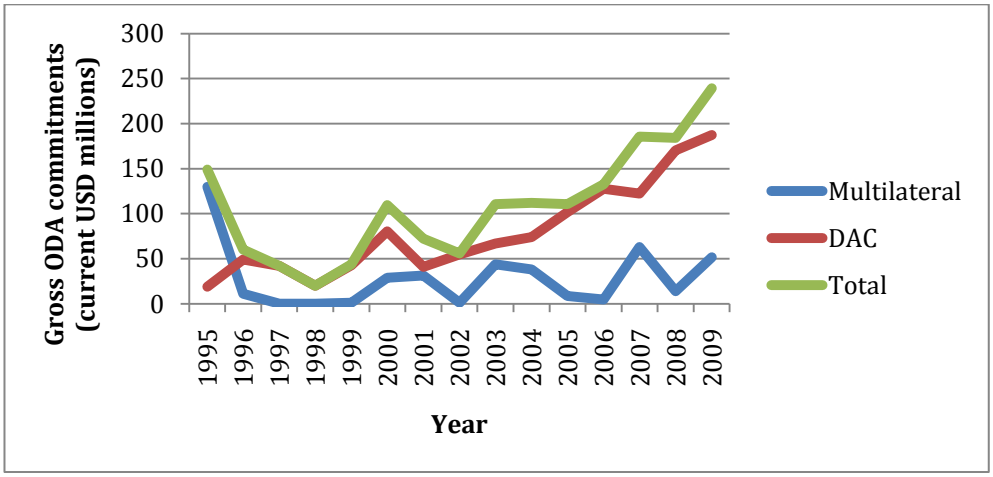
A significant problem with Mozambique is that because it has become subject to development policies and ideals prescribed by donors and multinationals such as the IMF and World Bank – an example of this being its HIPC status in 1998-, its governance structure has been undermined, and many of the responsibilities that should be held by the state are now being assumed by donors, foreign consultants and NGOs (Plank, D, 1993). This means that instead of the country defining its own developmental path and gradually learning the ropes of prudent and effective governance (which MDCs also had to do as some point in the past), its grave dependence on the financial support of donors is essentially forcing the government to succumb to external policy direction.

This, as observed by David Plank, has created a tension between what conditions the country has to adhere to in order to maintain foreign aid, and what it may want to achieve domestically. The three ways of dealing with this tension, according to Plank, are: (1) To take advantage of the different conditions required by different donors in order to achieve domestic breathing room; (2) Complying with aid conditions albeit with slow movement and resentment, and; (3) Allowing sloppy administration and/or corruption within public administration so as to achieve 'formal' compliance with aid conditions, while allowing the government enough room to 'informally' pursue its own agenda. The second and third options have largely been employed in Mozambique, with the third becoming more and more salient at present. As such since 2010, donors have begun to require increased accountability from the government and have expressed their dissatisfaction with the high levels of corruption and poor governance inherent of the country's incumbent administration (Rasmussen, 2010).

In terms of health status, Mozambique faces a number of issues. Firstly, its life expectancy has gone down to 41 years due to largely preventable diseases such as malaria, HIV/AIDS and tuberculosis (USAID, 2009), more than half of its population lives in extreme poverty, 'access to health services is limited' (USAID, 2006), and it is subject to a shortage of health care staff. Furthermore, much of the expenditure on health care provision is funded by external sources and a large proportion of existing health infrastructure was badly damaged during the civil war.

A further hindrance to the construction of effective infrastructure is that local people are often ignorant to the ways in which disease is spread. According to a report by Joseph Hanlon (2010), when a large cholera outbreak was experienced in Northern Mozambique, local people destroyed a health centre that served 24,000 people, saying, 'we destroyed all the equipment in the hospital because we are tired of dying of cholera.' (Hanlon, 2010). And so, in addition to combatting the spread of infectious and treatable diseases, there is also a dire need to educate local people about disease transmission and the components of a healthy lifestyle so as to prevent situations in which progress is unnecessarily hindered or eradicated.

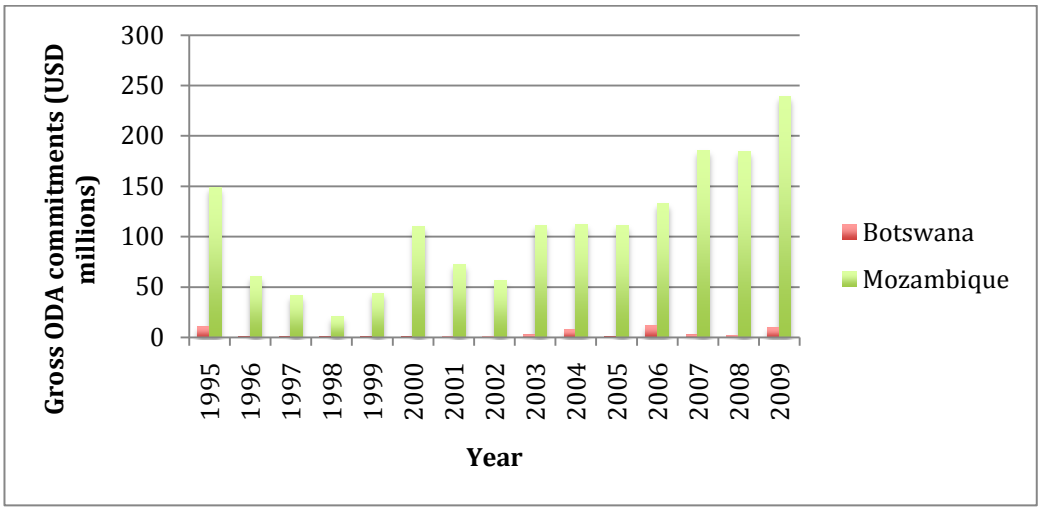
Figure 3: Gross Health ODA commitments 1995-2009



Source: OECD Creditor Reporting System

In order to further illustrate the large differences in aid receipts between the two countries examined in this study, Figure 4 shows just how divergent health ODA commitments have been between the two countries over 1995-2009. As can be observed, Mozambique has received considerably more foreign assistance than Botswana, with Mozambican aid commitments showing an increasing trend over the period.

Figure 4: Health ODA commitment comparison between Botswana and Mozambique 1995-2009



II: Literature Review

An evaluation of Official Development Assistance (ODA)

Given the huge amounts of aid transferred to the African continent, a plethora of research has been conducted to investigate its impact. As early on as the 1950s, during which time the aid model was still very much in its infancy, researchers began assessing the effectiveness of aid in improving standards of living. Despite how well the Marshall Plan had worked in rebuilding Western Europe, it was not long before foreign aid became subject to criticism. Already in 1972, development economist Peter Bauer openly spoke about the perils of believing aid to be the answer. In his 1989 publication in the Sunday Telegraph, he attributed the existence of the 'Third World' to aid disbursements, and argued that no country in the world had ever achieved economic development via external donations. Instead these offerings would block development, and increase the power of, often oppressive, governments within developing countries. In this way, productive energy would be diverted from focusing on economic growth and instead pursue the political agenda. Similarly in his 1986 book 'Political economy of regionalism in Africa,' Ghanaian professor Samuel Kingsley Botwe Asante succinctly stated that 'foreign assistance, especially foreign capitalism, has been somewhat deleterious to African development…limited evidence available suggests that the forms in which foreign resources have been extended to Africa over the past twenty-five years, insofar as they are concerned with economic development, are, to a great extent, counterproductive.'

Numerous practitioners and economists are of much the same view, one of which is Thomas Ditcher of the Washington-based think-tank, the Cato Institute. In his 2005 Foreign Policy

Briefing, Ditcher condemned aid as being ineffective in achieving growth or reducing poverty, and stated that 'as a means of reducing world poverty, aid has not worked, is not likely to work in the future, and cannot work,'(Ditcher, 2005). He went on to say that the hopelessness of aid had more to do the complex nature of poverty and the flawed character of African institutions and governments. Easterly's 2003 paper 'Can foreign aid buy growth,' also investigated the aid industry and presented reports from a 1998 World Bank assessment, which highlighted the fact that instead of assessing aid on the basis of societal results in developing countries, disbursements of loans and grants were the critical output measure. Although this had been noted, the World Bank's International Development Agency still defined itself by disbursement volume as late as 2001. In this paper, it was further noted that aid agencies in general give little priority to conducting post-aid analysis, and that if any assessment is conducted; it is the staff in charge of the original projects that often does it. As such, money is consistently pumped into the continent with little empirical justification, and so Easterly calls for an improvement in aid quality before an increase in its volume.

Rajan and Subramanian (2008) are one of many authors who have given an empirical basis for the abovementioned claims against aid. Their study is especially noteworthy because of its use of instrumental variables and also because the authors strove to capture historic relations through 'colonial links and commonality of language' (Frot, Perotta, 2010). In doing so, the authors arrived at four main conclusions; the first being that there is no robust positive correlation between aid and growth; the second is that aid does not seem to be more effective in countries with better policy and institutional environments; the third is that different kinds of aid do not work better than others, and; lastly the authors found very weak evidence suggesting that aid might be more effective in some geographical areas than others.

Dambisa Moyo, author of the 2009 book 'Dead Aid: Why aid is not working and how there is another way for Africa,' too presents arguments against the aid model, and states that instead of improving the situation in LDCs, aid actually exacerbates poverty and reduces both the accountability and legitimacy of the administrations within these countries. Thus, instead of calling for improvements and alterations, she calls for African development aid to be phased out over five years. Her conclusion is that instead of aid improving standards of living, it has locked Africa into a poverty cycle and encouraged widespread corruption. According to estimates presented in this work, roughly 25% of the US$ 525 billion lent to developing countries by the World Bank has been misused (Moyo, 2009).

Other studies however, like that of Clemens, Radelet and Bhavnani (2004), find a strong positive correlation between short-term aid and short-term economic growth, stating that even

under conservative assumptions, 'an additional one percentage point of GDP in short-impact aid produces 0.31 percentage points of annual growth over the four year period.' The authors note further that this 'short-impact' of aid is even stronger in countries with better functioning institutions and improved health indicators. This latter observation essentially supports the claim that if aid is given to recipient countries that adopt sound economic policy, it can be significantly effective. Justification for this can be found in Peter Boone's 1994 study on 'The Impact of Foreign Aid on Savings and Growth.' In this piece he states that instead of financing investment and therefore growth, aid financed consumption. Furthermore due to aid funds being highly fungible, countries with little transparency and rule of law can easily divert such funds away from donors' intended purposes. This serves as a justification for why policy matters, because if aid were to achieve its goal and fill the investment-savings gap in a country there would have to be favourable incentives to invest; if this is not the case, then aid will likely fuel current consumption only. In Tarp (2006) it is noted firstly that if aid allows a recipient government to pursue anti-developmental behavior then the potential positive impact of aid can be undermined. Nevertheless, Tarp finds that aid has been effective at the microeconomic level. Burnside and Dollar (1997, 2000) pursued this and concluded that aid would have a positive impact on expansion in 'developing countries with good fiscal, monetary and trade policies.'

This latter observation is also one of the conclusions of Williamson (2007), who noted that increased freedom and improved quality of a country's institutions can have a significant effect on health outcomes such as the percentage of DPT and Measles immunizations. In her 2007 study, she found that health care aid does not significantly improve the overall health of recipient countries despite controlling for GDP, and taking reverse causality into consideration (Williamson, C, 2007). A further complication regarding the controversial interaction between aid and institutional health is that many researchers have observed that high aid intensity[3] is associated with a degradation of institutional quality. Such a case tends to occur through three mechanisms: (1) aid cultivates corruption, an association statistically confirmed by Alesina and Weder (2002); (2) aid influxes create the need for a larger government, and in so doing increase the probability that corruption will occur, and; (3) aid encourages the development of a 'rentier state' effect, meaning that because aid represents income that is unearned, it reduces the government's accountability and legitimacy and can retard the development of a country's bureaucracy (Abuzeid, 2009). Effectively, this introduces an additional time dimension to Burnside and Dollar's findings, begging the question of whether the long-term effect of aid to institutionally-sound countries is positive or negative (Brautigam,n.d.).

[3] Total ODA transfers as a percentage of GDP

Nevertheless there are economists and researchers who are less negative regarding the effectiveness of aid. Jeffrey Sachs is a notable and famous advocate of the model, calling on the developed world to rise to the challenge of uplifting and saving the 2.5 billion people living in poverty around the world. Sachs (2005) argues that aid is vital in allowing those bottom billion countries '…a chance to climb the ladder of development,' after which they will begin their own ascent. He also stresses that the developed world should ensure that this development ladder is not laced with snares that advertently or inadvertently render LDC growth impossible –such snares include 'inadequate development assistance, protectionist trade barriers and poorly designed rules for intellectual property.' Surprisingly, even aid's avid critic, Easterly (2006), holds that there have been some improvements in Africa that can be attributed to aid, regardless of the model largely failing to improve economic growth. He states that "despite the zero-growth payoff to aid in Africa, there has been a fall in infant mortality and a rise in secondary enrollment …" (Gebhard, Kitterman, Mitchell, Nielson & Wilson, 2008). Croghan, Beatty, and Ron's (2006) results echo much the same conclusions. Having conducted case studies of Egypt, Ecuador, Bangladesh and Indonesia, the authors concluded that health intervention and foreign aid were more effective in improving the health of children than circumstantial factors such as economic development, prudent governance and well-functioning health systems (Croghan, Beatty, Ron, 2006). Other scholars too bring into question the importance of governance, having found that factors such as per capita income and a sound institutional framework 'do not have significant effects on the results of foreign aid projects.' (Dalgaard, Hansen, Tarp, 2001).

Nevertheless, as has been noted by Dodd et al. (2007), overall results in the health sector have been mixed. With health-specific aid, the classic micro-macro paradox is observed. Certain projects and case studies show significantly positive results, but aggregated data and large regressions seem to suggest exactly the opposite. And so despite notable successes in countries with –and without- efficient governance, the overall impact of health aid has largely been viewed as 'disappointing.'

However what needs to be kept in mind is that evaluating aid effectiveness with respect to health outcomes is particularly challenging because of the very specific characteristics of the sector and the recent trends that have been observed. The most noteworthy of these are: (1) There are unclear and overlapping mandates for the various international organizations and stakeholders involved in the sector –this reduces aid's effectiveness and can even render it destructive if projects overlap or conflict with each other (van de Walle, 1999); (2) Foreign intervention has continued to focus upon more publicized diseases, such as HIV/AIDS, to the detriment of primary health care; (3) The continued creation of new Global Health Partnerships

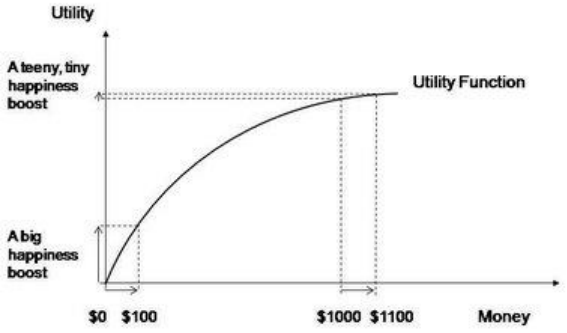
(GHPs)-who communicate poorly with local government- is putting a strain on local government, increasing transaction costs and making donor harmonization an ever more difficult target to reach; (4) Health aid is often focused upon specific issues and so not aligned with government priorities; (5) The aid given is rarely used to support holistic health systems (only 20% fund the government's overall program) meaning that the governments of LDCs find it difficult to attain sustainable and flexible funding so as to support infrastructure, staff and training; (6) The majority of funding for health is needed to support long-term recurrent costs, however as aid can be unpredictable and volatile, it is near impossible for health ministries to adopt long-term strategies (this volatility can contribute to drug resistance with medication being sporadically administered and then withdrawn); (7) Health is often governed by more than one authority and dependent upon individual behaviour; (8) The sector depends upon a wide range of inputs such as education, sanitation, and nutrition, making coordination between these sectors imperative if sustainable results are the goal, and; (9) Positive health outcomes are reversible (Dodd et al., 2007).

III: Theoretical Framework

The underlying philosophical foundation behind aid is Utilitarianism. Spearheaded by English author, philosopher, and social reformer, Jeremy Bentham (1748-1832), this normative philosophy holds that human actions are entirely motivated by pleasure and pain, and that 'the morally right action is the action that produces the most good' (Driver, 2009). And so in performing an action one has to consider not only their own good, but also the good of society in general. As such, the philosophy calls both for a comparison between the intrinsic value of different actions, as well a comparison of interpersonal utility – an economic notion tantamount to satisfaction or well-being and more formally defined as the "sum of satisfaction or benefit that an individual gains from consuming a given amount of goods or services..." (No author, 2008). Fundamentally, the normative prescription made by utilitarianism is that in case someone values a certain good/service more than another person, a redistribution of the object should take place. Or more generally, as long as the societal benefit of an action outweighs its societal cost, the action –whether it be killing someone or sharing an apple- should be pursued.

Thus, utilitarianism tends to strongly prescribe redistribution from rich to poor. However as mentioned earlier, the philosophy calls for interpersonal comparisons of utility and so aid must be related to some theory on the marginal utility of wealth. Alas, the theory of Decreasing Marginal Utility of Wealth. Illustrated in Figure 5, this principle asserts that as one's wealth grows, each additional dollar earned/received yields less utility than the last dollar, and so the richer one gets, the less satisfaction one derives from each additional unit of wealth. With respect to aid, which is effectively (and hopefully) a re-allocation of funds from rich to poor, the relative abundance of resources and wealth within the developed world is likely to mean that the marginal utility of wealth within this region is significantly lower than exhibited in LDCs. This disparity between utilities can be used a justification for fund re-allocation to LDCs, because the marginal benefit that the re-allocation can bring to the developing world will likely outweigh the marginal cost that it incurs on the developed world.

Figure 5: Diminishing marginal utility of Wealth



Source: http://nicoleandmaggie.wordpress.com

A further theoretical argument that is more widely used in order to justify aid disbursement from MDCs to LDCs is Paul Rosenstein-Rodan's 'Big Push' theory (1943). The fundamental tenet behind this theory is that during the early stages of development, sector-specific investments to industrializing firms can lead to spillovers to other sectors, thus facilitating an increase in the overall profitability of the economy. Nonetheless, Rodan held that such a state could not be achieved by the market economy alone because of the high likelihood of a coordination failure.[4] Such failure to coordinate in these beginning phases of development would lead to 'vicious circles of poverty,' and so Rosenstein-Rodan called for an active role of government in organizing the process of industrialization, and emphasized the need for a 'big push' in order to start the process of development (Skott, Ros, 1997). Such a big push can effectively come from anywhere, however for countries stuck in poverty traps (where the probability of government assuming a more active role is low), development aid is that big push which is often tasked with closing the savings-investment gap. Countries in poverty are prone to having such saving-investment gaps because the poor simply cannot save, and what

[4] Case whereby the lack of coordination between individuals' choices culminates into a state of affairs that is worse for everyone than an alternative arrangement.

this means, given the savings identity[5], is that no domestic investment will occur. Thus in such circumstances, aid is viewed at the necessary catalyst that can spur on investment and cause industrialization, growth and development within an economy.

Hypotheses

I: The higher health aid is, the better will be indications of health (that is, life expectancy, mortality rates, DPT and measles immunizations)

II: Health aid will be more effective in countries with higher levels of safety and rule of law.

IV: METHODOLOGY

In order to test for the efficacy of health care aid, a Two-stage Least Squares (2SLS) model will be estimated for each country using data from the period 1995-2009. The model includes health-specific aid commitments and a number of control variables that are also likely to affect the four chosen dependent variables: (1) Life expectancy; (2) Under-five Mortality; (3) DPT immunization, and; (4) Measles immunization. Note that although it would be more beneficial to use the actual level of health aid disbursements, health aid commitments have been used because of the lack of data on actual payments. Thus, the data on health aid is evaluated on the rather idealistic assumption that all stated commitments represent actual outlays. 2SLS will be used, in order to allow for the estimation of an auxiliary regression using instrumental variables. This step is of great importance because of the inherent reverse causality that exists between aid and many development indicators. This is to say that aid disbursements tends to go to low-growth countries, and fluctuate in quantity as a country develops (Frot, Perotta, 2010), for instance as health outcomes improve, aid will fall, and vice versa. The methodology employed is very similar to that used in Williamson's 2007 study on the impact of aid to the health sector, however a number of aspects are different.

Firstly, by studying 208 countries Williamson found health aid to be insignificant in explaining trends in life expectancy, death rate, DPT immunizations and infant mortality. All the countries examined were very divergent in terms of culture, economic development and region, and so I have chosen to just look at 2 quite similar states in Southern Africa, in order to see if those same aggregate results hold on a more micro-level. Furthermore, instead of using just lagged aid as an instrumental variable (an avenue prescribed by Boone (1996)) I will test the robustness of Williamson's results by using an altered auxiliary regression which includes both lagged aid and primary donor (s) GDP.

[5] Savings = Investments

The evaluation period selected, i.e. 1995-2009, has been chosen so as to include the growth spurt of many African countries during the 1990s, and is capped off at 2009 as a result of data availability.

Two-stage-least-squares (2SLS)

As mentioned earlier, reverse causality proves to be a serious methodological challenge when investigating the effectiveness of aid, and for this reason I have chosen to employ two-stage-least squares. This is a method that calls for the identification of so-called 'instrumental variables' which meet four key criteria: (1) They are a cause of the problematic independent variable; (2) They affect the dependent variable only through the independent variable; (3) They are not caused by the dependent variable and; (4) There is no confounding factor which explains both the instrumental variable and the dependent variable. Therefore for this particular study, a valid instrumental variable must affect/cause the level of aid commitments, it must not be directly related to the output variables (i.e. infant mortality, life expectancy, DPT immunization and measles immunization), and it should only affect the dependent variables through the aid variable.

Once such a variable(s) is identified, a new auxiliary regression is estimated, in which the instrumental variable is regressed onto the problematic independent variable. The resulting equation is then used to generate a new series, which represents the independent variable 'free' of reverse causality. Only once this new variable is generated, can the second-stage final model be estimated.

Various studies that aim at investigating whether there is a causal relation between aid and growth make use of instrumental variables. However, the main criticism against this method is that variables tend to be chosen 'without any clear identification strategy' (Frot, Perotta, 2010). As a result, different studies have used a wide, and ever-growing, variety of instrumental variables, ranging from 'friends of OPEC,' 'log population,' 'budget surplus,' 'aid (-1)' and 'aid^2,' many of which are often difficult to defend and are seen as external, instead of exogenous. What this means is that the instrument might well be generated externally from the system being investigated, for instance the aid-growth system, however it might still affect the dependent variable through a more complex route than that via the problematic independent variable. The result of this is that one has an external, but not exogenous, instrumental variable.

Despite these pitfalls, this study will make use of 2SLS, simply because the alternative of not doing so can lead to biased results. As mentioned earlier, Williamson made use of lagged aid as a result of Boone's 1996 claim that such a variable can be used as a valid instrument

for aid, given that it will reflect the long-term strategic interests of donors (Williamson, 2007). Although slightly counter-intuitive, in the sense that past aid is likely to at least have *some* effect on current health indicators, Boone argues that because aid reflects the special interests of donors, it will be uncorrelated with present conditions in recipient countries (Boone, 1996). As a result different lags of aid have been tested to see if they represent valid instrumental variables. The second instrumental variable, donor GDP, has been included on the basis of the intuition that donor growth and economic output is likely to have some effect on aid commitments. Correlation analysis (see Appendix B) tests the validity of these two instrumental variables for each country and yields the following auxiliary regressions:

$$Aid\ commitments_{B,t} = c + \beta GDP_{us,t-1} + \varepsilon_{B,t}$$

$$Aid\ commitments_{M,t} = c + \alpha ODA_{M,t-1} + \beta GDP_{euro,t-1} + \varepsilon_{M,t}$$

The donor GDP present in each of the formulas is that of the main donors to each country, as shown by OECD data for 1995-2009. Furthermore, for Botswana lags of ODA were shown to be insignificant and so are not present in its auxiliary model.

The final model used to estimate the efficacy of health-specific aid is the same for both countries and is formulated as such, with $Y_{i,t}$ representing the various dependent variables:

$$Y_{i,t} = c + \gamma Aid\ commitments_{i,t} + \delta Population\ density_{i,t-1} + \theta GDP\ per\ capita\ growth_{i,t} + \varphi\ (Safety\ and\ rule\ of\ law_{i,t} * Aid\ commitments_{i,t} + \varepsilon_{i,t}$$

Variable descriptions

Below is a description of the central variables used in this study. Data on health indicators and other control variables, such as infant mortality, life expectancy, measles immunization, DPT immunization, population density and safety and rule of law have been taken from the 2011 World Bank African Development Indicators dataset, and all definitions are those presented within the report. The statistics on Health Care Aid Commitments have been taken from the OECD Creditor Reporting System Database.

Gross ODA health aid commitments (millions of US$)

The OECD defines official development assistance as 'flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount).' Therefore, the ODA measure does not include debt relief, technical assistance and other forms of aid (such as emergency aid).

Gross health aid commitments represents ODA earmarked for health issues, which aims at enhancing the health policy and administrative management within a recipient country, as well as encouraging medical education/training, medical research and medical services. The data for this variable is measured in current U.S. dollars and is an aggregation of bilateral and multilateral aid commitments.

Under-5 Mortality Rate

The under-five mortality rate, as according to the World Bank, is 'the probability per 1,000 that a newborn baby will die before reaching age five, if subject to current age-specific mortality rates.' According to Mishra's and Newhouse's 2007 study on the effectiveness of health care aid, infant mortality is a primary health indicator because: (1) data for it is far more trustworthy than that for other health indicators; (2) under-5 mortality is far more susceptible to moves in the economy and is thus viewed as a 'flash-indicator' of the health environment of the poor (Boone, 1996); (3) improvements in infant mortality tend to spur on enhanced life expectancy; and (4) infant mortality tends to be a proxy for a broad range of other health aspects such as 'access to medication and health facilities, water and sanitation quality, maternal health, maternal and infant nutrition and disease exposure, per capita GDP and economic inequality' (Mishra, Newhouse, 2007).

Life expectancy at birth (total)

Life expectancy at birth indicates 'the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.' This is one of the three main indicators used (along with infant mortality and under-five mortality) to assess the overall health of a population as it too, proxies for various other important aspects such as nutrition and prevalence of disease (Gebhard, Kitterman, Mitchell, Nielson & Wilson, 2008)

Safety and Rule of Law

This measures looks at 'the extent to which the judicial process is subject to interference or distortion by interest groups,' and is an aggregation of 4 indicators: (1) Personal safety; (2) Rule of law; (3) Accountability and corruption and; (4) National security. Numerous other studies that look at the effectiveness of aid, whether it be sector-specific or not, tend to include a measure that indicates the quality of aid recipients' institutions. This is because countries that are more transparent and democratic are more likely to channel aid to the intended end-users (ibid. 2008).

DPT and measles immunization

Both of these measures give 'the percentage of children aged 12-23 months who have received vaccinations before 12 months or at any time before the survey.' The DPT vaccine protects against three infectious diseases: Diphtheria, Whooping cough and Tetanus. Both Measles and

the three DPT diseases tend to affect the young, with Measles still extremely prevalent in Africa (Medecins san Frontieres, 2011).

GDP per capita growth (annual %)

This is the 'annual percentage growth rate of GDP per capita based on constant local currency.' This variable has been included due to the fact that differences in GDP explain more than half of the health indicator disparities in recipient countries (Gebhard, Kitterman, Mitchell, Nielson & Wilson, 2008), and so if anything is to be said about health outcomes, a measure of GDP growth must be included. This variable's necessity is not only empirically justified but also intuitively justified, because as wealth increases, people are more likely to gain access to improved medical services and so attain an improved health status.

Population density

Population density may give an indication of how easily infectious disease can spread and is measured as the 'midyear population divided by land area in square kilometres.' In this model it is lagged because the effect it has on health outcomes will likely be assimilated into indicators only in the next year, i.e. it is not expected to have an immediate effect. Population in this sense counts 'all residents regardless of legal status or citizenship,' while land area is defined as 'a country's total area, excluding area under inland water bodies, national claims to continental shelf, and exclusive economic zones.'

V: Results

Note that various control variables have been used in the models in order to get a better picture of how health aid will affect the different health indicators. In model 1, no control is included; in model 2 the effect of population density is taken into account; in model 3, GDP per capita growth is accounted for, and finally in Model 4, the interaction between health aid and safety and rule of law is incorporated. The latter is important not only as a control, but also for testing Hypothesis II.

Botswana

Table 1: Impact of health ODA on Under-five mortality

Dependent variable: Under-five mortality				
	(1)	(2)	(3)	(4)
Gross Health ODA commitments	-6.598788***[6]	-23.74821	-24.64197	237.5100*
	(1.852747)	(18.46432)	(18.57595)	(108.7775)

[6] * Significant at 10%
** Significant at 5%
*** Significant at 1%

Population density		194.1330 (219.4207)	205.7073 (219.6629)	-28.92276 (65.47658)
GDP per capita growth			0.222934 (0.879731)	0.690426 (0.417940)
Safety and Rule of Law*Gross Health ODA commitments				-2.828850* (1.209857)
Constant	94.47799*** (7.856919)	-457.3036 (624.5906)	-490.4468 (624.5992)	216.6716 (185.2129)
R-squared	0.652354	0.691342	0.692796	0.966328

Table 1 initially shows health aid to have a considerably negative effect- as health care aid increases by $1 million, the probability of infant mortality decreases by 0.66 points- on the probability of a new-born baby dying before the age of 5; a result validating Hypothesis I. Nonetheless, as the various control variables are included in the model, this effect is removed and then finally reversed, with model 4 implying that health aid commitments actually increase the probability of a new-born dying before reaching 5 years old. As such, the effect of health aid on under-five mortality in Botswana is largely inconclusive.

Table 2: Impact of health ODA on Life expectancy at birth

Dependent variable: Life expectancy at birth				
	(1)	(2)	(3)	(4)
Gross Health ODA commitments	-0.530782 (0.396094)	0.972284 (0.304830)	1.238410 (3.216482)	-1.654604 (16.92147)
Population density		-17.01484 (38.67647)	-20.46121 (38.58826)	14.09839 (9.590120)
GDP per capita growth			-0.066381 (0.6775)	-0.002252 (0.085534)
Safety and Rule of Law*Gross Health ODA commitments				0.016308 (0.184419)
Constant	53.43478*** (1.447467)	101.7958 (110.3238)	111.6645 (109.9756)	6.477876 (27.65303)
R-squared	0.248846	0.266504	0.274107	0.890964

Table 3: Impact of health ODA on DPT immunization

Dependent variable: DPT immunization				
	(1)	(2)	(3)	(4)
Gross Health ODA commitments	-0.104811 (0.062424)	0.751781 (0.768803)	0.627358 (0.805609)	-11.96019 (19.72744)
Population density		-9.696696 (9.177226)	-8.085409 (9.654518)	-10.90925 (15.06722)
GDP per capita growth			0.0031035 (0.046729)	0.000523 (0.019761)
Safety and Rule of Law*Gross Health ODA commitments				0.121334 (0.165498)

Constant	0.360610 (0.272713)	27.92139 (26.15511)	23.30745 (27.53844)	-11.96019 (19.72744)
R-squared	0.107556	0.171126	0.189548	0.159883

According to Table 2 and 3, health sector aid does not have a significant effect on life expectancy at birth or the percentage of children receiving DPT immunizations between 12-23 months. Furthermore none of the other controls like GDP growth, population density or safety and rule of law affect these dependent variables.

Table 4: Impact of health ODA on Measles immunization

Dependent variable: Measles immunization				
	(1)	(2)	(3)	(4)
Gross Health ODA commitments	-0.004749 (0.060599)	-0.196402 (0.482911)	-0.416278 (0.418841)	-15.36399** (3.576082)
Population density		2.169524 (5.607528)	5.016944 (4.564305)	9.306392* (3.415939)
GDP per capita growth			0.054845 (0.055529)	0.081898** (0.021295)
Safety and Rule of Law*Gross Health ODA commitments				0.165694** (0.038213)
Constant	0.370247 (0.225828)	-5.796162 (15.93669)	-13.94980 (12.89306)	-26.60364* (9.832907)
R-squared	0.000476	0.007335	0.131348	0.767895

As shown in Table 4, health aid commitments significantly and considerably worsen the percentage of children receiving measles immunizations. On the same token, it is shown that both population density and GDP per capita growth improve this percentage –a 1% increase in GDP per capita growth improves the percentage of measles immunization by 0.082%-, and that the effect of health aid is reversed to being positive provided that safety and rule of law is high. This latter result implies that as health aid increases by $1 million in a safe and lawful society, the percentage of infants immunized against measles increases by 0.166%. This conclusion supports hypothesis II and the findings of Burnside and Dollar.

Mozambique

Table 5: Impact of health ODA on Under-five mortality

Dependent variable: Under-five mortality				
	(1)	(2)	(3)	(4)
Gross Health ODA commitments	-0.271314*** (0.019445)	-0.109236 (0.017401)	-0.037121 (0.025172)	-0.062455** (0.018595)
Population density		-5.716541*** (0.334972)	-5.314678*** (0.551191)	-5.176623*** (0.398832)
GDP per capita growth			-0.123863 (0.122824)	-0.124488 (0.081568)
Safety and Rule of Law*Gross				-0.001753** (0.000527)

Health ODA commitments				
Constant	195.3506*** (2.316299)	307.5530*** (6.243739)	300.2710*** (10.21987)	300.4143*** (7.974915)
R-squared	0.941943	0.997954	0.998173	0.997582

The results shown in Table 5 suggest a slightly more promising role for health ODA in reducing the probability of under-5 mortality. In model 1, health ODA commitments reduce the probability of under-5 mortality and this same result is echoed, albeit the effect being weaker, when all control variables are included, i.e. in model 4. In the last model, health ODA commitments, population density and the interaction of aid and institutional soundness, are shown to negatively affect the under-5 mortality probability. Therefore, the result is that in Mozambique, health-sector ODA is having the desired effect of reducing under-5 mortality, especially when combined with improved safety and rule of law. Furthermore, as population density decreases, under-five mortality is also likely to be reduced.

Table 6: The impact of health ODA on Life expectancy at birth

Dependent variable: Life expectancy at birth				
	(1)	(2)	(3)	(4)
Gross Health ODA commitments	0.015491*** (0.001644)	-0.002651 (0.003806)	-0.002551 (0.004246)	0.008147* (0.003383)
Population density		0.411407*** (0.090990)	0.408419** (0.102142)	0.183163 (0.089401)
GDP per capita growth			-0.006573 (0.013767)	-0.029199 (0.20910)
Safety and Rule of Law*Gross Health ODA commitments				0.000257 (0.000253)
Constant	45.9901*** (0.259283)	37.91505 (1.820633)	38.01044*** (2.074605)	42.45000*** (1.879867)
R-squared	0.891660	0.975900	0.976185	0.988469

Health aid commitments are shown above to have a very slight positive impact on life expectancy at birth. In model 1 it is observed that as health aid commitments increase by 1 million USD, life expectancy at birth increases by 0.015 years, or rather 5.5 days. Once other control variables are included, this impact is both weaker and less significant, falling to an increase of 2.97 days for every additional 1 million in health care aid. Interestingly, the results also suggest that as population density increases, life expectancy increases. The result is noteworthy because it seems to challenge the general-held opinion that as people live closer together, that is population density is higher, disease is likely to spread more easily and health indicators to worsen.

Table 7: Impact of health ODA on DPT immunization

Dependent variable: DPT immunization

	(1)	(2)	(3)	(4)
Gross Health ODA commitments	0.079329*** (0.022650)	-0.069873 (0.046907)	-0.070464 (0.046867)	-7.84E-14 (8.19E-14)
Population density		3.383572*** (1.067926)	3.40122*** (1.031889)	2.09E-12 (2.15E-12)
GDP per capita growth			0.038832 (0.269482)	5.51E-14 (4.50E-13)
Safety and Rule of Law*Gross Health ODA commitments				-3.52E-16 (2.62E-15
Constant	63.51135*** (3.040904)	-2.900274 (21.99726)	-3.463818 (20.57505)	76*** (4.49E-11)
R-squared	0.622779	0.774536	0.774800	0.77684

Without the inclusion of control variables, gross ODA health commitments are shown to positively affect the percentage of infants immunized against DPT. Essentially a $1 million increase in health care aid is associated with a 0.079 increase in the percentage of infants immunized. Furthermore, population density is shown to positively affect DPT immunization, suggesting that as areas become more populated, DPT immunization will increase. These two effects are not however significant in the final model, with the coefficient for health care aid actually exhibiting a reversal of sign.

Table 8: Impact of health ODA on Measles immunization

Dependent variable: Measles immunization				
	(1)	(2)	(3)	(4)
Gross Health ODA commitments	-0.003982 (0.020790)	-0.179160 (0.105632)	-0.183989 (0.101682)	0.071034 (0.036072)
Population density		3.972623 (2.564465)	4.116886 (2.474501)	-1.999985 (0.884711)
GDP per capita growth			0.317393 (0.558407)	0.409198 (0.328543)
Safety and Rule of Law*Gross Health ODA commitments				0.001321 (0.001899)
Constant	0.847520 (2.476629)	-77.12579 (51.81256)	-81.73187 (50.56200)	40.55195 (18.19663)
R-squared	0.003048	0.409349	0.443687	0.744911

The results for measles immunization are far less promising, with health care aid having no significant effect on this health indicator regardless of model specification.

VI: Conclusion

The results of this paper seem to largely support the results of Williamson (2007) on the micro-level and point to a number of noteworthy conclusions. Firstly, the effect of health care aid

seems to be geographically specific, and secondly the overall effects of health aid are, in absolute terms, generally disappointing.

With respect to aid's effectiveness being geographically specific, aid to Mozambique seems to be much more effective. In sum, health care aid to Mozambique is shown to have a very limited negative effect on the probability of under-5 mortality, a slightly positive effect on life expectancy and DPT immunization, and no significant effect on the percentage of infants immunized against measles. In Botswana on the other hand, the effect of health aid on the probability of under-5 mortality actually seems to be positive, aid to the health sector does not significantly affect life expectancy or DPT immunization, and commitments are shown to negatively affect the percentage of infants immunized against measles. However what should be kept in mind when looking at these results is firstly, that Botswana is receiving considerably less aid than Mozambique and so how its health indicators perform is likely to be more a result of economic growth, prudent governance and foreign investment, and secondly, the dataset used to arrive at these results is exceptionally small.

This latter point also allows for some skepticism on whether aid is actually as ineffective as portrayed in this study. Although aid is shown to have slight effects on certain health indicators, like DPT immunization and life expectancy, - thus yielding a more positive result than that garnered in Williamson's study- from an absolute standpoint these effects are quite disappointing given that actual quantitative relationships are shown to be relatively weak. Thus, while certain results in this study can be used to support the use of aid, the overall questions that seem to be highlighted are not so much whether aid is effective, but more whether aid is the *most* effective manner in which to achieve improved health care, and if the aid model is indeed applicable to all developing countries.

Limitations of the study

The most fundamental weakness of this study is the relative lack of data that has come as a result of focusing on countries separately. Various other studies have instead aggregated the information from numerous countries and done regressions on this entire dataset, allowing them a much larger database to work with. Nonetheless, cross-sectional regressions are especially prone to problems of endogeneity, model ambiguity, and measurement inaccuracy, and furthermore one cannot entirely eliminate unobservable heterogeneity by controlling for other relevant factors (Rajan, Subramanian, 2008). The approach used in this paper largely avoids this, but at the same time has only allowed for 15 years of data, and so 15 observation points for estimation of each model. This severely discredits any statistical conclusions garnered from this investigation and so further studies might want to aggregate countries on the basis of similar characteristics in order to arrive at sound conclusions on the efficacy of

health aid.

A second limitation, but also strength, of this study is the use of instrumental variables. While this method is aimed at mitigating reverse causality -a severe problem in the investigation of aid efficacy-, the selection of instrumental variables is extremely subjective and can make all the difference in determining whether a variable is significant or not. While the auxiliary regression used in this study does include lagged aid as suggested by Williamson and Boone, the inclusion of donor GDP is purely of my own thinking. Thus the extent to which this variable is valid is of course an issue in assessing any of the paper's results. Identifying valid instrumental variables is a point of weakness because finding a factor(s) that affects donor disbursements is an inherently difficult task. This comes because different donors are subject to a wide array of very different motivations, for instance the UK may support its former colonies significantly more than other countries, or the US may give aid to a country close to an enemy so as to insure its own strategic interests. These examples very briefly illustrate the difficulties in finding instrumental variables for aid; a problem that is not only complicated by the diversity of relevant donor interests but also by the availability of information on these interests.

Suggestions for further research

As mentioned earlier, the results of this paper bring into question whether aid is the best way to achieve improved health care and if aid's effectiveness is constant across different countries and regions. Thus a first suggestion for further research would be to extensively investigate how other channels or sources of income affect health outcomes. These could include FDI, economic growth, government-sponsored health programs, and NGO activity; especially with respect to the latter, an investigation that compares aid effectiveness and NGO efficacy would prove extremely relevant and fascinating. A second issue of interest would be to see whether increased harmonization between donor and local governments actually leads to an improvement in the efficacy of health care aid. Furthermore, it may prove worthwhile to (further) investigate whether the effectiveness of aid varies between countries with different geographical, historical, and political characteristics. Such a study could allow for increased discussion on whether multilateral 'one-size-fits-all' programs are effective worldwide, and if we should instead be employing different development strategies in different regions.

Ultimately however this field of research is subject to numerous complexities and exceptions not only because of the idiosyncrasies of country's political systems, historical experiences, levels of aid dependence, and economic development, but also because of the complex methodological issues that arise during investigation.

Appendix A: Descriptive Statistics

Botswana

	Observations	Mean	Median	Standard deviation	Minimum	Maximum
Under-5 mortality	50	93.958	87.550	34.736	49.400	170.400
Life expectancy	50	56.379	55.632	4.914	49.327	64.096
DPT immunization	30	91.433	94.5	7.035	71	98
Measles immunization	30	87.3	89	7.178	63	94
Health ODA (original)	15	3.273	1.188	4.125	0.046	11.427
Health ODA estimate	14	2.759	2.913	2.284	-0.949	5.885
GDP per capita growth	49	6.099	4.698	5.269	-5.069	22.394
Population density	50	2.108	2.048	0.814	0.946	3.440
Safety and rule of law	9	88.688	88.763	0.480	87.991	89.280
US GDP (IV)	15	11,421,487	11,486,300	1,368,184	9,019,900	13,144,400

Mozambique

	Observations	Mean	Median	Standard deviation	Minimum	Maximum
Under-5 mortality	47	228.411	238.7	48.625	139.6	300.4
Life expectancy	50	42.815	42.772	3.916	35.004	49.278
DPT immunization	29	57.345	57	16.107	29	76
Measles immunization	29	61.276	62	14.172	32	77
Health ODA (original)	15	108.529	110.537	61.974	20.199	239.211
Health ODA estimate	14	105.205	99.895	57.987	29.555	201.364
GDP per capita growth	29	2.311	4.224	6.490	-17.393	14.855
Population density	49	17.497	16.943	5.532	9.918	29.114
Safety and rule of law	9	65.875	66,485	1.756	62.973	67.926
Euro-17 GDP (IV)	15	9,003,472	9,079,915	791,596.9	7,726,521	10,144,644

Appendix B: Instrumental variable selection and auxiliary equation estimation

Botswana

	ODA	ODA(-3)	Euro-17 GDP (-1)	UK GDP(-1)	US GDP(-1)
ODA	1.000000	0.287749	0.495973	0.530417	0.545673
ODA(-3)	0.287749	1.000000	0.074737	0.060872	0.064090
Euro-17 GDP (-1)	0.495973	0.074737	1.000000	0.985772	0.988474
UK GDP (-1)	0.530417	0.060872	0.985772	1.000000	0.994578
US GDP (-1)	0.545673	0.064090	0.988474	0.994578	1.000000

Dependent variable: Gross Health ODA commitments					
	(1)	(2)	(3)	(4)	(5)
US GDP (-1)	4.89E-0.6 (1.20E-05)	2.11E-07 (9.89E-06)	-1.41E-06 (8.94E-06)		1.65E-06*** (3.35E-07)
UK GDP (-1)	2.35E-05 (6.29E-05)	2.50E-05 (5.65E-05)	1.80E-05 (5.26E-05)	9.76E-06 *** (1.96E-06)	
Euro-17 GDP (-1)	-1.19E-05 (1.30e-05)	-4.87E06 (1.04E-05)			
ODA(-3)	0.260399 (0.279135)				
Constant	10.66354 (34.12356)	-0.316780 (29.70018)	-13.22360 (10.83249)	-14.54393 *** (3.306105)	-15.91710*** (3.629995)
R-squared	0.429779	0.383962	0.370384	0.368961	0.363649

* Significant at 10%
** Significant at 5%
*** Significant at 1%

Mozambique

	ODA	Euro-17 GDP (-1)	US GDP (-1)	UK GDP (-1)	ODA (-1)
ODA	1.000000	0.890949	0.867603	0.862197	0.740398
Euro-17 GDP (-1)	0.890949	1.000000	0.993131	0.992717	0.643482
US GDP (-1)	0.867603	0.993131	1.000000	0.997320	0.593497
UK GDP (-1)	0.862197	0.992717	0.997320	1.000000	0.603557
ODA (-1)	0.740398	0.643482	0.593497	0.603557	1.000000

Dependent variable: Gross ODA Health commitments		
	(1)	(2)
Euro-Area GDP (-1)	7.07E-05*** (1.12E-05)	5.61E-05*** (5.62E-06)
Moz_ODA(-1)		0.345323** (0.122825)
Constant	-527.5176*** (99.48894)	-431.3665*** (45.49243)
R-squared	0.793790	0.841439

* Significant at 10%
** Significant at 5%
*** Significant at 1%

BIBLIOGRAPHY

Abuzeid, F. (2009). Foreign aid the 'big push' theory: Lessons from Sub-Saharan Africa. *Stanford Journal of International Relations*, *11*(1), 16-23. Retrieved from http://www.stanford.edu/group/sjir/pdf/Aid_11.1.pdf

Acemoglu, D., Johnson, S., & Robinson, J. (2001). An African success story: Botswana.

Alesina, A. and Dollar, D. (2000), Who gives aid to whom and why?, Journal of Economic Growth 5, 33-63.

Alesina, A and Weder, B. (2002), 'Do corrupt governments receive less?' *The American Economic Review*, 92 (4), pp. 1126-1137.

Asante, S. K. B. (1986). *Political economy of regionalism in Africa*. New York: Praeger Paperbacks.

Banerjee, Abhijit, Shawn Cole, Esther Duflo, and Leigh Linden. 2003. "Improving the Quality of Education in India: Evidence from Three Randomized Experiments." Mimeo, MIT.

Barr, Abigail and Marcel Fafchamps. 2006. "A Client-Community Assessment of the NGO Sector in Uganda." *Journal of Development Studies,* forthcoming.

Bauer, P. & Yamey, B. (1989). Against foreign aid. *Libetarian Alliance*, Retrieved from http://www.libertarian.co.uk/lapubs/econn/econn023.pdf

Boone, P (1994), 'The Impact of Foreign Aid on Savings and Growth', CEP Working Paper No. 677, London School of Economics.

Boone, P (1996), 'Politics and the Effectiveness of Foreign Aid', NBER Working Paper No. w5308, Available at SSRN: http://ssrn.com/abstract=225372

Brautigam, D. (1999). Aid dependence and governance. *Expert Group on Development issues*.

Burnside, C. and Dollar, D. (1997), Aid, policies, and growth, Policy Research Working Paper 1777, World Bank, Washington, D.C.

Burnside, C. and Dollar, D. (2000), Aid, policies, and growth, American Economic Review 90, 847-68.

CIA, (2012). *World fact book*. Retrieved from website: https://www.cia.gov/library/publications/the-world-factbook/geos/za.html

Clemens, M., Radelet, S., & Bhavnani, R. Centre for global development, (2004). *Counting chickens when they hatch: The short-term effect of aid on growth*. Retrieved from website: http://www.cgdev.org/doc/Working Papers/CountingChickens_2004_version.pdf

Collier, P. and Dollar, D. (2001), Can the world cut poverty in half? How policy reform and effective aid can meet the international development goals, World Development 29, 1787-802.

Croghan, T., Beatty, A., & Ron, A. (2006). Routes to better health for children in four

developing countries. *The Millbank Quarterly*, *84*(2), 333-358. Retrieved from http://www.jstor.org/stable/pdfplus/25098120.pdf?acceptTC=true

Delfin, S. G., & Page, J. The International Bank for Reconstruction and Development, (2008). *Africa at a turning point? Growth, Aid and External shocks*. Washington DC: The World Bank.

Ditcher, T. (2005). Time to stop fooling ourselves about foreign aid: A practitioner's view. *Cato Institute Foreign Policy Briefing*.

Dodd, R., Schieber, G., Cassels, A., Fleisher, L., & Gottret, P. World Health Organisation, Health policy, development and services. (2007). *Aid effectiveness and health* (Working Paper No. 9). Geneva: World Health Organisation Document Product Services.

Driver, J. (2009). The History of Utilitarianism. In *Stanford Encyclopedia of philosophy* Retrieved from http://plato.stanford.edu/entries/utilitarianism-history/

Duflo, Esther and Michael Kremer. 2003. "Use of Randomization in the Evaluation of Development Effectiveness." Paper prepared for the World Bank Operations Evaluation Department (OED) Conference on Evaluation and Development Effectiveness in Washington, D.C. 15-16 July, 2003.

Easterly, W. (2003). Can foreign aid buy growth?. *Journal of Economic Perspectives*, *17*(3), 23-48.

Fisher, William F. 1997. *Doing Good? The Politics and Antipolitics of NGO Practices.* Annual Review of Anthropology, 26: 439-464.

Frot, E., & Perotta, M. (2010). Aid effectiveness: New instrument, new results?. Retrieved from http://www.hhs.se/SITE/Staff/Documents/draft_aid.pdf

Fruttero, Anna and Varun Gauri. 2005. "The Strategic Choices of NGOs: Location Decisions in Bangladesh." *Journal of Development Studies,* 41 (5): 759-787.

Gebhard, N., Kitterman, K., Mitchell, A., Nielson, D., & Wilson, S. (2008). *Healthy aid? Preliminary results on health aid effectiveness*. Informally published manuscript, Brigham Young University.

Hanlon, J. (2010, February 22). Aid to Mozambique. Retrieved from http://www.open.ac.uk/technology/mozambique/pics/d119584.pdf

Hicks, N., & Streeten, P. (1979). Indicators of development: The search for a basic needs yardstick. *World Development*, *7*, 567-580.

In Mozambique, signs of growth amid rampant poverty [Web series episode]. (2010). Werner, D. (Executive Producer), *PBS Newshour*. United States: Public Broadcasting Service. Retrieved http://www.pbs.org/newshour/bb/health/july-dec10/mozambique_11-22.html

IPC. United Nations Development Program, (2005). *Poverty status report for Botswana: Incidence, trends, and dynamics*. Retrieved from website: http://www.ipc-undp.org/publications/reports/Botswana.pdf

Kabete, C. N. (2008). *Foreign aid and economic growth: The case of Tanzania*. (Master's thesis, Graduate School of Development Studies).

Kerapeletswe, C., Isaken, J., Slob, A., & Jerve, A. Swedish International Development Cooperation Agency, (2008). *Managing aid exit and transformation: Botswana country case study*. Retrieved from SIDA website: http://sidapublications.citat.se/interface/stream/mabstream.asp?filetype=1&orderlistmainid=2552&printfileid=2552&filex=3434294073936

Kremer, M. 2003. "Randomized Evaluations of Educational Programs in Developing Countries: Some Lessons," *American Economic Review Papers and Proceedings,* 93(2): 102-115.

Kremer, M, Moulin,S, & Namunyu.R (2003). "Decentralization: A Cautionary Tale," unpublished working paper, Harvard University.

Madeley, J. (2011). Aid and development. *Appropriate Technology*, *38*(4), 15.

Meyer, Carrie A., 1995, "Opportunism and NGOs: Entrepreneurship and Green North-South Transfers," *World Development,* 23 (August), pp. 1277–89.

Mishra, P., & Newhouse, D. (2007). Does health aid matter?. *Journal of Health Economics*, (28), 855-872.

Mo Ibrahim Foundation. (n.d.). *Detailed description of indicators: Safety and rule of law*. Retrieved from http://www.moibrahimfoundation.org/en/section/the-ibrahim-index/methodology/index-indicators?id=1

Moyo, D. (Writer), & Evans, A. (Director) (2009). Will African nations weather the financial crisis [Web series episode]. In *HardTalk*. London, England: BBC. Retrieved from http://www.youtube.com/watch?v=o1dZw6nItu4

Moyo, D. (2009). *Dead aid: Why is aid is not working and how there is another way for Africa*. (First ed.). London, England: Penguin Books.

Nancy, G., & Yontcheva, B. International Monetary Fund, (2006). *Goes NGO aid go to the poor? Empirical evidence from Europe*

Nel, E., & Rogerson, C. M. (2005). *Local economic development in the developing world: The experience of southern Africa*. (First ed., pp. 1-17). New Jersey: Transaction Publishers.

NicoleandMaggie. (2011, October 24). [Web log message]. Retrieved from http://nicoleandmaggie.wordpress.com/2011/10/24/marginal-tax-rates-why-they-make-sense/

No author. USAID, (2006). *Mozambique health sector overview*. Retrieved from website: http://transition.usaid.gov/mz/doc/misc/health overview_nov2006.pdf

No author. (2008, August 11). *The Diminishing Marginal utility of wealth*. Retrieved from http://www.thefinancialphilosopher.com/2008/08/the-diminishing-marginal-utility-of-wealth.html

Medecins san frontieres. *Measles in Africa: Portrait of a resurgent killer*. (2011, November 1). Retrieved from http://www.doctorswithoutborders.org/publications/alert/article.cfm?

OECD. (n.d.). Creditor Reporting System. Retrieved from http://stats.oecd.org/Index.aspx?DatasetCode=CRSNEW

Pearson, L. The World Bank, Commission on International Development. (1969). *Partners in development: Report*. New York: Praeger Paperbacks.

Plank, D. (1993). Aid, debt and the end of sovereignty: Mozambique and its donors. *The Journal of Modern African Studies*, *31*(3), 407-430. Retrieved from http://adpm.pbworks.com/f/David Plank - Aid, Debt and the end of Sovereignty.

Powell, B. (2008). *Making poor nations rich: Entrepreneurship and the process of economic development*. (First ed.). California: Stanford Press.

Rajan, R., & Subramanian, A. (2008). Aid and growth: What does the cross-country evidence really show?. *The Review of Economics and Statistics*, *90*(4), 643-665. Retrieved from http://www.mitpressjournals.org/doi/pdf/10.1162/rest.90.4.643

Rasmussen, L. (2010, July 1). Donors put brakes on Mozambique aid. *Mail & Guardian*. Retrieved from http://www.mg.co.za/article/2010-07-01-donors-put-brakes-on-mozambique-aid/

Sachs, J. D. (2005). *The end of poverty: Economic possibilities of our time*. (First ed.). New York: Penguin Books.

Salamon, L., 1994, "The Rise of the Nonprofit Sector," *Foreign Affairs,* Vol. 73, No. 4, pp. 109–10.

Sen, A. (1999). *Development as Freedom*. (First ed.). New York: Anchor Books.

Skott, P., & Ros, J. (2011). The 'big push' in an economy with nontradable inputs. *Journal of Post Keynesian Economics*, *20*(1), 149-162. Retrieved from http://www.econ.uchile.cl/uploads/docencia/348eba77e6b2e58f2df70b2f32865d51332fcfc1.pdf

Tandon, Y. (2008). *Ending aid dependence*. (2 ed.). Cape Town: Fahamu-Networks for Social Justice.

Tarp, F. (2006). Aid and development. *Munich Personal RePEc Archive*.

United Nations, (2012). *Human development report.* Retrieved from website: http://hdr.undp.org/en/statistics/

United Nations. (n.d.). *About human development*. Retrieved from http://hdr.undp.org/en/humandev/

United States Agency for International Development, (2006). *Performance and accountability report*. Retrieved from website: http://www.usaid.gov/performance/apr/

Van de Walle, Nicolas. 1999. Aid's crisis of legitimacy: Current proposals and future prospects. *African Affairs* 98 (July): 337-52.

Werker, E., & Ahmed, F. Z. (2007). What do non-governmental organisations do?. *Journal of Economic Perspectives*.

Williamson, C. (2008). Aid and human development: The impact of foreign aid on the health sector. *Southern Economic Journal*, *75*(1), 188-207.

Wilmer, Y. (2010). *The downside of aid?: an analysis of the effect of foreign aid on the level of corruption*. (Unpublished master's thesis, Erasmus University), Available from University Library.

World Bank (2005), World Development Indicators 2005, World Bank, Washington, D.C.

World Bank (2011), African Development Indicators 2011, World Bank, Washington, D.C.