

THE EFFECTIVENESS OF FOREIGN AID: CASE STUDIES OF BOLIVIA AND TANZANIA

Josh Hall
Elizabethtown College
Drexel University

ABSTRACT

In this study we develop a theoretical framework to establish how GDP may be affected by national saving, investment, and foreign aid. We then consider two case studies from Latin American and Africa (Bolivia and Tanzania, respectively), highlighting salient economic characteristics. We then conduct regression analysis to determine whether aid, investment, population growth, and budget deficits affect growth. We include two types of aid—one, outright grants, the other consisting of subsidized loans; the former may be considered akin to debt relief.

The results of our analysis indicate an absence of a significant relationship between aid and growth in Bolivia. In the case of Bolivia, furthermore, we obtain a negative relationship between deficits and growth (supporting contentions in the literature that suggest a beneficial role for fiscal policy). In the case of Tanzania, the results suggest a positive relationship between grants (as opposed to loans) and growth. These case studies, thus, highlight the uneven effects of aid, and suggest possible mechanisms for improving the effectiveness of foreign aid.

INTRODUCTION

Since the Marshall Plan in 1947, history has shown how foreign aid has both greatly contributed to the economic growth and poverty reduction in lower income countries, and, at other times, been an unmitigated failure. “Botswana and the Republic of Korea in the 1960s, Indonesia in the 1970s, Bolivia and Ghana in the late 1980s, and Uganda and Vietnam in the 1990s are all examples of countries that have gone from crisis to rapid development” (World Bank Research). While not the only reason, foreign aid played a critical role for financing the growth of these developing countries. Schools and health clinics were built, water was purified, and sanitation, roads, healthcare, and irrigation were all improved, impacting the lives of hundreds of millions of people. In each of these cases, foreign aid has been a primary support of the transformations.

Yet, history has also shown the flip side. Countries, such as Congo and Tanzania, have long been unresponsive to foreign aid. The large inflow of aid, instead of fostering a climate of economic growth and development, went to encouraging the present corruption and misguided policies. For example, “consider Tanzania, where donors poured a colossal \$2 billion into building roads over 20 years. Did the road network improve? No. For lack of maintenance, roads often deteriorated faster than they could be built” (World Bank Research). In fact, the *American Enterprise Institute* commented in a

testimony to the Senate Foreign Relations Committee:

“Enormous and steady flows of concessional external finance from developed countries have permitted Third World governments to pursue “development” policies that have been wasteful, ill-conceived, and unproductive – or even positively destructive.” (Burnside and Dollar, 1997, 1)

Additionally, a recent World Bank global poll reported that 84 percent of “opinion makers” agree with the statement that, “Because of corruption, foreign assistance to developing countries is mostly wasted” (Burnside and Dollar 2004, 20). While this is not in itself conclusive, this poll efficiently represents the skepticism of the effectiveness of foreign aid.

The highly controversial debate dates back to the end of the 1940s when the United States began sending foreign aid as a way to encourage a more rapid growth in developing countries, as well as those countries trying to rebound after World War II. After initial success, the real growth of the countries has not always been very satisfactory.

These results have spawned critiques from both the right and left, both questioning the effectiveness of foreign aid. “Conservatives argue that aid supports large and inefficient governments

that create a bad environment for economic activity. On the other side, the left has argued that aid agencies have foisted structural adjustment policies on unwilling countries and that these policies have not delivered the promised benefits" (Burnside and Dollar 1997, 1). The inconsistent effectiveness of foreign aid must be studied to foster improvements in the future. Already progress has been made, yet there is still room for further reform. The underlying question still persists: "How can development assistance be most effective at reducing global poverty?" (World Bank Research)

Development, however, can no longer be only measured through an increased growth of GDP. Currently the purpose of foreign aid is to increase the living standards of the entire population. The situation is dire. The World Bank reports that more than 1.3 billion people live in extreme poverty, making less than \$1 dollar a day, while almost half the global population, nearly 3 billion people, live on less than \$2 a day. Additionally, 1.3 billion have no access to clean water, 3 billion have no access to sanitation, and 2 billion have no access to electricity (Wolfenson). These are services taken for granted in most developed countries. The United Nation's *Human Development Report* went on to help create four new composite indices for human development, the *Human Development Index*, the *Gender-related Development Index*, the *Gender Empowerment Measure* and the *Human Poverty Index*. They emphasize the urgent need for human development, not only GDP growth:

Human development is about much more than the rise or fall of national incomes. It is about creating an environment in which people can develop their full potential and lead productive, creative lives in accord with their needs and interests. People are the real wealth of nations. Development is thus about expanding the choices people have to lead lives that they value. And it is thus about much more than economic growth, which is only a means - if a very important one - of enlarging people's choices. (Human Development Reports)

Despite the current necessity of foreign aid, many developed countries have reduced the level of their spending. When the world's governments met at the Earth Summit in Rio de Janeiro in 1992, they adopted a program to increase the levels of foreign aid. Among other initiatives, this summit included an Official Development Assistance (ODA) aid target of 0.7% of gross national product (GNP) for rich nations, which consists of 22 members of the

Organization of Economic Co-operation and Development (OECD) known as the Development Assistance Committee (DAC) (Shah). However, since 2000, the OECD reported only 5 out of the 22 DAC countries, Norway, Denmark, Netherlands, Luxemburg and Sweden, have met this mark (See Appendix C). The United States increased its ODA by 11.6% in real terms in 2002, from the Millennium Challenge Account, mainly due to additional and emergency funds in response to the September 9, 2001 terrorist attacks as well as new aid initiatives, especially in relation to health and humanitarian aid. However, the US's ODA was only 0.14% of its GNI in 2003, the lowest of any DAC member country. The current low levels of ODA further emphasize the need to maximize its effectiveness.

This paper will explore those various methods of maximizing the benefits of foreign aid. The World Bank and United Nations have been the current leaders in this field, and this study will explore the individual data of Bolivia and Tanzania to either refute or support the previous findings through econometric analysis.

FOREIGN AID CONTROVERSY

There have been many previous studies on the effectiveness of foreign aid that has already led to tremendous improvement in the quality of foreign aid. Studies have taken every type of form, ranging from traditional pro-aid views to radical anti-aid views. The traditional view contends that foreign capital will positively contribute towards economic growth through many different ways. "It is argued that foreign capital not only augments domestic resources of the capital-deficient countries, but also helps them mitigate severe foreign exchange constraints, provides access to modern technology and managerial skills, and allows easier access to foreign markets" (Islam 542). It was further noted that once economic growth was created through foreign aid, it would then be self-sustained through domestic capital formation (Mbaku 1310). Chenery and Strout (1966) defined the importance of foreign aid as being a bridge to "the gap between domestic savings and domestic investment and provide the economy with the chance to eventually become economically autonomous" (Mbaku 1310). Additionally, Papanek (1973) claimed to have empirically found evidence that foreign aid significantly impacted the economic growth of developing countries.

Yet, the growth experience over the last four decades has not always coincided with this traditional wisdom. The anti-aid view contends that foreign aid substitutes rather than complement domestic resources (Islam 542). Additionally, foreign aid can “import inappropriate technology, distort domestic income distribution, and be biased towards a bigger, inefficient and corrupt government in those countries” (Islam 542). Friedman (1964) further argued that in the long run, foreign aid would *slow* economic development because the problem in developing countries was not capital formation but, instead, poor allocation of resources. As a result, foreign aid is not the answer; instead, he encouraged “the United States and other Western countries to support and promote the development of democratic institutions and free enterprise in the developing countries” (Mbaku 1310). Additionally, Mosely (1980) refuted the early study of Papanek (1973), claiming the aid-growth relationship was strong, but collapsed by the end of the 1970s. The empirical results of this debate have been mixed at best.

These past studies, along with many more, have paved the way for newer looks at the effectiveness of foreign aid. As the global economic and political environment continues to evolve, new insights show what can be effective forms of foreign aid and what is simply inefficient and wasted aid.

More recent studies are not confined into the historical categories of pro-aid and anti-aid, but instead break apart what aspects of aid are effective and what are not. David Dollar and Craig Burnside (1997) asked: “Does aid have a positive effect on growth in the presence of good economic policies?” (Burnside and Dollar, 1997, 1-2) This study of 56 countries from 1970-1993 concluded, like most prior studies, that foreign aid had, on average, little correlation with economic growth. However, there was a significant, positive effect on growth in countries with solid economic policies in place, which included aspects such as rule of law, absence of corruption, openness to trade, macro stability, and effective social services. This finding has important implications for answering the question of how to improve the efficacy of foreign aid. Burnside and Dollar said, “In allocating assistance, donors have not sufficiently exploited the relationship between good policies and effective aid, probably because donors are pursuing a range of interests that are not necessarily consistent. If they want to have a large impact on growth and poverty reduction, then they should place greater weight on the economic policies of recipients” (Burnside and Dollar, 1997, 4). In fact,

if more was allocated on the basis of policy rather than donor interest, the mean growth rate of poor countries would shoot up from 1.10% to 1.44% without even changing the total quantity or recipients of foreign aid (Burnside and Dollar, 1997, 32). This finding is highly significant, especially now, because governments are under pressure to reduce total ODA elevating the need to maximize the effectiveness of foreign aid.

The Burnside and Dollar (1997) report was not meant to discourage the use of foreign aid, just suggest a smarter use for it. One critique is that it seems to leave those without strong economic policies already in place to become ineligible for any foreign support. However, that problem may not be severe: the report shows that the current methods of giving aid to these countries are ineffective and wasteful, but it also provides alternative ways to donate aid to these countries. Some of these useful approaches in these difficult environments could be channeling aid through Non-Governmental Organizations (NGOs) or trying to identify and support reformers at the country level or in particular communities that would work for the productive goal of changing current, misguided policies. Policy change is the first focus for any country without solid economic policies.

This study leaves room for another important critique: economic growth does not necessarily equate to improved social conditions and decreased poverty levels among the mass population. As stated earlier, human development is not simply measured through a positive GDP growth rate. Burnside and Dollar (1998) issued another study addressing the relationship between foreign aid and infant mortality. This seemingly odd connection is used to measure the improvement of the quality of life for the recipients. Based on their 1997 study results, they looked at the infant mortality rates of those poor countries with solid economic policies in which foreign aid had a positive correlation. The results were in line with their 1997 conclusions. Countries with poor economic policies not only showed that foreign aid had no impact on their GDP growth, but also, the infant mortality rate in those countries showed no decline. On the other hand, poor countries with strong policies saw an immediate and direct improvement in their infant mortality rates. This further supports the conclusion that allocating aid to poor countries that have put good policies into place is the best way to maximize the effectiveness of foreign aid (Burnside and Dollar, 1998, 1-2). It is important to note that weak economic policies

include many factors, such as poor property rights, high corruption, closed trade regimes and macroeconomic instability.

David Dollar, along with Paul Collier, (1998) further emphasized this conclusion with a comparison of the actual allocation of aid with their efficient allocation model. This study compared their efficient allocation of aid model, in which aid would increase with improved policy reform, with the current, actual allocation, in which as reform occurs, aid decreases. Their conclusion stated, "We show that even with the present allocation, aid is effective in lifting around 30 million people per annum sustainably out of absolute poverty. With a poverty-efficient allocation this would increase to around 80 million people" (Dollar and Collier, 1).

This study highlighted a key flaw in the way aid is allocated. Even up through 2002, aid was given as a method to *induce* policy reform, and then once policy reform is achieved, the aid is allocated somewhere else. "This produces a pattern in which aid is targeted on weak policy environments" (Dollar and Collier, 23). This method has been shown to be an ineffective way to give foreign aid. Aid should be directed to countries with solid economic policies in a place where the poverty problem is soluble. "In particular, there is broad agreement that giving a large amount of financial aid to a country with poor economic institutions and policies is not likely to stimulate reform, and in fact may retard it" (Burnside and Dollar 2004, 4).

Currently, few aid agencies selectively disperse foreign aid. Based on policy and poverty selectivity indexes, including the World Bank's Country Policy and Institutional Assessment (CPIA), the foreign aid rates in both France and the United States are very low, which indicates that much of their foreign aid donations go to countries who are not among the world's poorest or to those who are well governed. Japan continues to score high on the policy index, but low on the poverty index. This is largely due to the fact that a high percentage of Japan's aid goes to China and the rest of Asia which have solid economic policies in place, but are not the poorest countries in the world. The European Commission also remains near the bottom on the CPIA poverty index. Because France, the United States, the European Commission and Japan are some of the largest donors of foreign aid, it is important to increase the effectiveness from these donors (Dollar and Levin 5).

After decades of prodding from the World Bank and International Monetary Fund (IMF) seeking a change of policy, the United States and President Bush introduced the Millennium Challenge Account in 2002. President Bush, in his speech at the Inter-American Development Bank on 14 March 2002, called for "a new compact for global development, defined by new accountability for both rich and poor nations alike. Greater contributions from developed nations must be linked to greater responsibility from developing nations." The President also pledged that the United States would lead by example and increase its foreign aid by 50 percent over the next three years. This was intended to create a state of competition in which developing countries would quickly first solidify their economic policies in order to receive the foreign aid (*TheWhiteHouse.gov*). This new policy is an example of a more selective method of dispersing foreign aid, which means channeling relatively more aid resources to poor countries with reasonably good institutions and policies. Jeffrey Sachs said, "I was very gratified that the president spoke about the millennium goals. The U.S. is now explicitly on record, and whether it's fully appreciated or not, this day is going to be the start of a considerable deepening of the U.S. commitment" (Blustein).

Jeffrey Sachs, for the most part, optimistically sees improvement on the horizon for the way in which foreign aid is dispersed. Sachs, leading a team of 250 economic experts, researched the state of foreign aid effectiveness for the United Nations. His results were also in line with those from David Dollar and the World Bank. His finding gives hope for the future of foreign aid, dispelling the prevailing pessimism regarding its effectiveness. The Millennium Development Goals (MDGs) were adopted by the UN in 2000 which targets goals, such as, among others, halving the population of people living on one dollar a day or less, achieving universal primary education, and reducing the infant mortality rate by two-thirds, all by 2015. Sachs believes this is still in reach, even given the sub-par growth up until this point, most notably in sub-Saharan Africa, but still some changes are needed. He said most of the correlation between aid and slow growth is due to the overlooked fact that "aid is given to countries recovering from natural disasters, famines or other humanitarian emergencies. You would expect countries battered down by such calamities to grow more slowly than the average, so the correlation between aid and slow growth is false" (Economist 70). He goes to say that, "Well-designed aid, delivered in a sustained way to countries with

reasonably good governments, does what it is supposed to” (Economist 70). The importance of sound institutions and clean, effective governments is a recurring theme in the development literature. Sachs also states that poverty can arise from many sources, such as geography, history, disease or others, and not just from poor and often corrupt governments. It is important to correctly identify those developing countries with a strong government and give them aid “at scale.” As for countries fraught with corruption, such as Chad and Nigeria, Sachs argues that money should be first designated to remedying this problem before any others are addressed. This necessitates strategies to be individually formed on a case by case basis with “policies designed and owned by the country itself” (Economist 70).

The selective approach to foreign aid and incentive based aid policies has only had moderate success up until this point, however. This is not because the method is faulty, but because the application of the system has yet to be perfected. Success is largely based on the level of motivation and ease of process for social change and reform in the recipient country. If there is not a strong commitment to policy change, then the government often times will reverse the changes after they have already received the aid. Also, policy change is inherently hard to monitor due to its subjective judgment. Additionally, governments are looking to disburse their funds, and as a result, the aid is given, often times, on the basis that the recipient country is making a good faith effort, even though no substantial change has been made. This cycle diminishes the effectiveness of selective donation (Dollar and Easterly 14-15).

The recent Asian tsunami disaster, and the subsequent large inflow of aid, will also provide current applications to the findings of David Dollar and the World Bank. The December 26, 2004, disaster claimed the lives of hundreds of thousands of people in several countries and island states from the tidal waves that followed an undersea quake off Aceh province on the northwestern tip of Indonesia, the area worst hit in the disaster. Many more in other coastal communities from Thailand to Sri Lanka, southern India, the Maldives, the Seychelles and Somalia in east Africa, also lost their homes and jobs. This called for a large amount of foreign aid inflow to the areas hardest hit. However, the effectiveness of this foreign assistance is yet to be determined. Dollar (1997, 1998) implies that part aid, based on donor interest, which is the case with the tsunami

example, has proven to be only moderately effective at best. However, a focused target for the aid may reverse this negative trend, and provide an additional model to make aid more effective.

THE THERORETICAL FRAMEWORK

We develop a model linking foreign aid and GDP growth. Similar models have been used to study the effectiveness of foreign aid in Cameroon (Mbaku 1993) and in Bangladesh (Islam 1992). This study, however, will focus on Bolivia and Tanzania, specifically¹.

It is important to note at this point what exactly comprises foreign aid, as it can be defined in many different ways. The broadest way to define the term is with official development finance (ODF). ODF is the largest category that includes any and all financing that flows from either developed countries or multilateral agencies to the developing world. This is in contrast to using official development assistance (ODA) and official assistance (OA) figures, which is the most common way to classify “foreign aid.” ODA (or OA) is normally targeted directly to the poorest countries and comprises “grants plus concessional loans that have a least a 25 percent grant component” (World Bank Research). ODA/OA, as measured by the OECD, is what this study will use to represent foreign aid. (This is the approach adopted by several foreign aid studies, including those by the World Bank.)

Equation 1 depicts the aggregate production function for a country:

$$Y = F(K, L), \tag{1}$$

where Y is GDP, K is investment, and L is the labor force. Equation (1) implies that the output growth is a function of investment and labor force growth. From Equation (1), we obtain:

$$GR = a + b(I/Y) + c(GL), \tag{2}$$

where GR stands for the annual rate of growth of real GDP, *a* represents the effect of excluded variables or the y-intercept, I/Y is the investment-GDP ratio which will henceforth be shown as simply IY, and GL is the annual rate of growth in the labor force. The coefficients, *b* and *c*, measure their respective variable’s marginal impact on GDP growth. Due to difficulty in finding accurate data, GL is replaced with the population growth rate, PG. (Other studies

have also used population growth.) Adding the stochastic error term, U , produces

$$GR = a + b(IY) + c(PG) + U. \quad (3)$$

We now incorporate foreign aid in the model. First we assume that aid affects growth without necessarily increasing investment. It is imperative to note that this equation is based on the assumption that none of the aid is invested.

$$GR = d + e(IY) + f(AID) + g(PG) + U. \quad (4)$$

We also look at savings (instead of investment) as an explanatory variable. The variable SY will be used to denote the difference between total aid (AID) and the gross fixed capital formation (IY). Replacing IY with SY yields

$$GR = d + e(SY) + f(AID) + g(PG) + U, \quad (5)$$

where SY is the savings variable. In this case all of the foreign aid is represented within the total investment for each country. Total aid as a proportion of GDP (AID) can be further decomposed into aid given as grants ($AIDGR$) and aid given as loans ($AIDLN$), both as a proportion of GDP, in order to test their individual effect on GR . Additionally, the variable of Budget Deficit/GDP ratio (DEF) was added which is helpful because it will show the relationship between the deficit and GDP growth. This may point to how foreign aid can be made more effective. This, in agreement with the previous discussion of assumptions, provides the final equations:

$$GR = h + i(IY) + j(AIDGR) + k(AIDLN) + l(PG) + m(DEF) + U, \text{ and} \quad (6)$$

$$GR = n + o(SY) + p(AIDGR) + q(AIDLN) + r(PG) + s(DEF) + U \quad (7)$$

For the study, we looked at two countries – Bolivia and Tanzania. The data for the amounts of Official Development Assistance (ODA) and Official Aid (OA) are taken from the International Development Statistics (IDS) online Databases on aid and other resource flows collected by the OECD. Data for investment, savings, deficit and population growth are from the World Bank and the International Financial Statistics (IFS) databases. The data for Bolivia will cover the years from 1971 to 2003 ($n = 33$) doubling the length looked at by most studies, while the data from Tanzania will cover

the years from 1983 to 2003 ($n = 21$) (data before 1983 is not easily available).

METHODOLOGY AND ESTIMATION

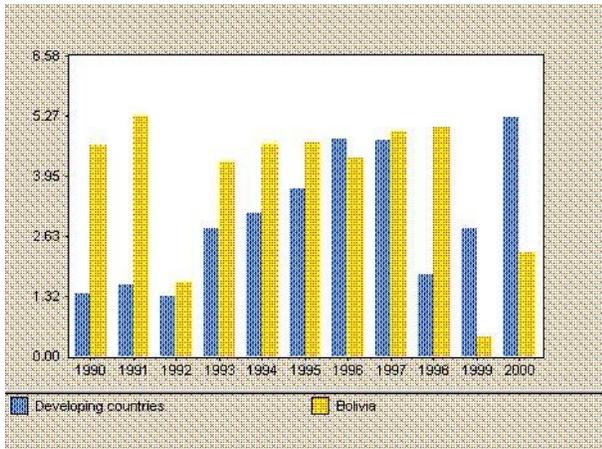
In equating (4) – (7), we expect the independent variables will have a positive, significant correlation with GDP growth, while it is unclear the effect the deficit/GDP variable will have on GDP growth. The deficit variable could potentially either stimulate or slow down the GDP growth. Often during times of recession, increased government spending is a method to initiate growth. However, if the deficit grows too large, as in the case of much of South America, then it will begin to slow the economy as a whole. Population growth, which measures the growth in the labor force, should lead to a faster growth of output. Foreign aid, as well as total investment, is also likely to contribute to GDP growth. (However, this has not always been the case based on prior studies. In fact many show that foreign aid had little or no impact on GDP growth.)

We chose Bolivia, in South America, and Tanzania, on the Eastern coast of sub-Saharan Africa, because these countries received a large amount of foreign aid over an extended period of time making them good examples of their particular regions. In 2002, Bolivia's aid was 9 percent of its Gross National Income (GNI), down slightly from 9.1 percent in 1997. Tanzania saw foreign aid represent 13.2 percent of its GNI in 2002, up from 12.5 percent in 1997 (2004 World Development Indicators). Both are considered low income countries by the World Bank. They will each provide representative test cases for examining the effectiveness of foreign capital in promoting economic growth.

Bolivia

Bolivia has long been one of the poorest and least developed Latin American countries. After establishing comparatively democratic rule in 1982, leaders have faced difficult problems of deep-seated poverty, social unrest, and drug production. Yet, in the late 1980s with economic policy improvement, Bolivia made considerable progress into the 1990s toward the development of a market-oriented economy. After six years of negative GDP growth beginning in 1980, growth hit its highest mark in almost 20 years in 1991, reaching 5.3 percent growth (See Chart 1). This trend highlights the Dollar and Burnside (1997) study on how change in economic policy best facilitates economic growth. Further developments occurred in the mid-1990s under

Chart 1
Bolivia's GDP Growth



President Sanchez De Lozada, including the signing of a free trade agreement with Mexico and becoming an associate member of the Southern Cone Common Market (Mercosur), as well as the privatization of the state airline, telephone company, railroad, electric power company, and oil company. However, tight government budget policies, and the fallout from the Asian financial crisis led to slowed growth in 1999, as GDP grew by only 0.4 percent. 2000 continued to slow Bolivia's growth as major civil disturbances held down growth to 2.3 percent. "Bolivia's GDP failed to grow in 2001 due to the global slowdown and laggard domestic activity. Growth picked up slightly in 2002, but the first quarter of 2003 saw extensive civil riots, looting and loss of confidence in the government. Bolivia will remain highly dependent on foreign aid unless and until it can develop its substantial natural resources" (CIA Factbook). Bolivia is still trying to improve their economic policies to attract needed foreign investment (FDI), strengthen their educational system and fight against political corruption. However, the solid policy foundation is already present in Bolivia creating an environment in which foreign aid can be highly effective.

Equations (4) – (7) in Bolivia were estimated using annual time-series data initially tested with the ordinary least-squares (OLS) method (See Appendix A). The residuals were applied to the Durbin-Watson (DW) test to detect for the presence of autocorrelation. The test results yielded no presence of potential autocorrelation among the residuals using the DW range of $1.4 < DW < 2.6$.

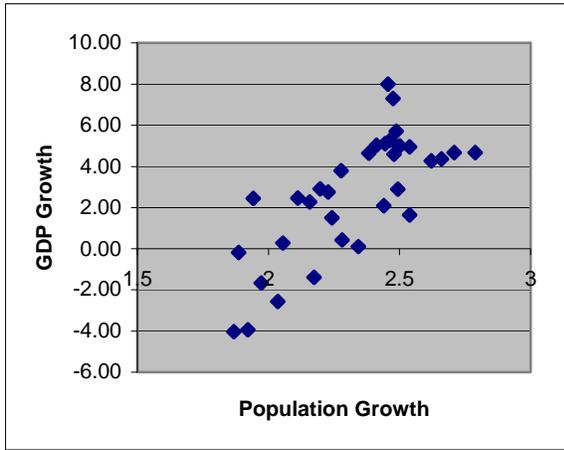
Based on this finding, we can therefore use the original results from the OLS estimation.

However, it is still possible for the equations to suffer from simultaneous equations because two or more of the explanatory variables may not be truly independent. To avoid or adequately minimize this problem, each equation was run with the current values for each of the explanatory variable replaced with their lagged values. And again, these new equations were tested with the DW test. The lagged results showed potential positive autocorrelation for the lagged residuals ($DW = 1.25$). Furthermore, correlations were tested between each of the explanatory variables. Each of the variables were shown to be sufficiently independent, using the simple correlation absolute value cutoff of 0.6, with the exception of the variables AIDGR and AIDLN (simple correlation = 0.799389). To remedy the potential multicollinearity problem, one of the two variables were dropped and the equation re-estimated. Dropping one of the variables had only a small effect on the overall results of the test. It only served to reinforce the original equations.

Additionally, each equation estimated for Bolivia was quite satisfactory reporting high R^2 values. The R^2 values for equations with current regressors were 0.57, while the equations with lagged regressors were 0.55. Both results can be considered reasonably acceptable because a large number of independent variables have been excluded which could explain variation in the dependant variable. These variables could include, for example, technological change or intellectual property policy change. The y-intercept also proved to be statistically significant which further shows the absence of many explanatory variables. The variables used in this study were the ones most pertinent for the study of foreign aid, however, many more could have been added.

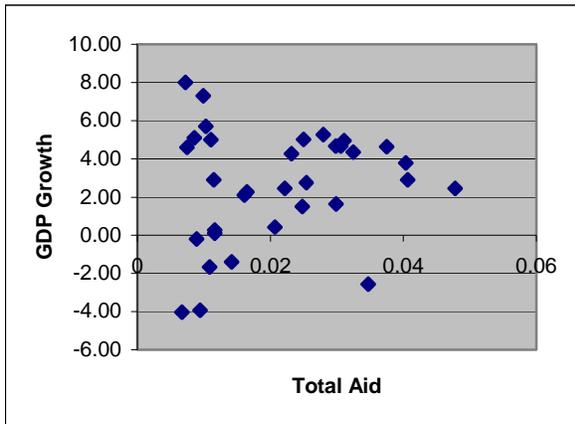
In all regressions the growth in population was statistically significant (at 1% level). The correlation between population growth, or labor force growth, and GDP growth was positive, indicating the greater the labor force, the greater the GDP growth (See Chart 2).

Chart 2
Bolivia Population Growth vs. GDP Growth



Conversely, with respect to the contribution of foreign aid, the coefficients were not significant (See Chart 3).

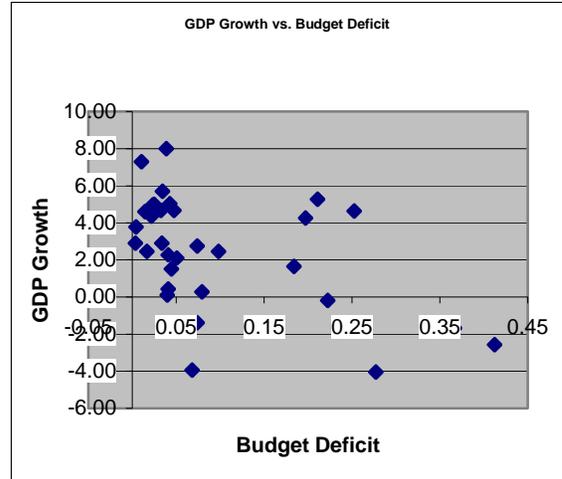
Chart 3
Bolivia's GDP Growth vs. Total Aid



This finding indicates the ineffectiveness of foreign aid to increasing GDP growth in Bolivia. Decomposing aid into the categories of grants (AIDGR) and loans (AIDLN) also showed insignificant results, again reinforcing the ineffectiveness of foreign aid in either form it is given. The time series was further divided into two time sets with the first being between 1971 and 1987, with the second being between 1988 and 2003. This was done to measure the effectiveness of the policy reform in the late 1980s. However again, the regressions for foreign aid were insignificant during both of the estimated timetables indicating the policy

changed did not increase the effectiveness of foreign aid.

Chart 4
Bolivia's GDP Growth vs. Budget Deficit

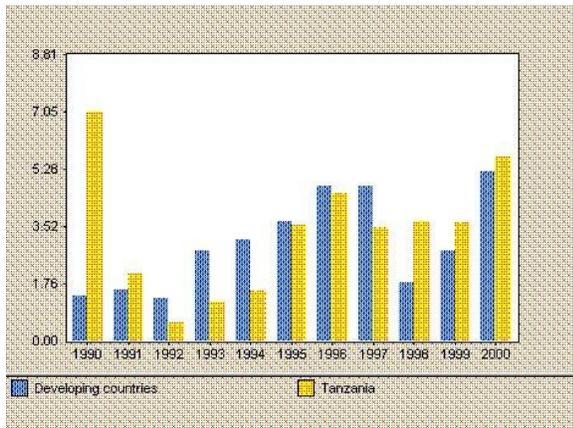


The deficit/GDP ratio, however, was statistically significantly correlated (at the 5% level) to the GDP growth using lagged regressors (See Chart 4). The negative correlation connects a lower deficit with a higher GDP growth rate. This is important because it shows how aid might have a significant impact on GDP growth in this particular country, or region. Aid can be more effective if it is allocated, not as grants or loans, but as debt reduction.

Tanzania

Tanzania is one of the poorest countries in the world, with 20 percent of the population living on less than \$1 dollar a day in 2002. The economy depends heavily on the often-unstable agricultural sector, as it accounts for about half of GDP. This despite the fact that topography and climatic conditions limit cultivated crops to only 4% of the land area. "The World Bank, the International Monetary Fund, and bilateral donors have provided funds to rehabilitate Tanzania's out-of-date economic infrastructure and to alleviate poverty" (CIA Factbook). This led to GDP growth (See Chart 5)

**Chart 5
Tanzania's GDP Growth**



between 1991-2002 due to newly implemented industrial production, a substantial increase in output of minerals, led by gold, and the emergence of Tanzania's first democratic election in 1995.

Developing economic policies continue to fuel growth as recent banking reforms have helped increase private sector growth and investment. "Continued donor assistance and solid macroeconomic policies supported real GDP growth of more than 5.2% in 2004" (CIA Factbook). Tanzania has been labeled by the UN Millennium Project as a country whose government is on the "threshold" of qualifying for aid. Additionally, Tanzania rated high in a variety of other UN measures including African Peer Reviews, and having a recognized poverty-reduction strategy in place. The World Bank has also judged Tanzania to be a country with the capacity to absorb and utilized aid. Each is signs that show Tanzania is poised to make effective use of foreign aid (Economist 70, chart).

Similarly to the regressions run for Bolivia, time-series data from Tanzania was initially run with the ordinary least-square (OLS) method (See Appendix B). The residuals were then tested for the presence of autocorrelation. The test detected no presence of serious autocorrelation among the residuals with the range of $1.4 < DW < 2.6$. This indicates the OLS estimates can be used for interpretation.

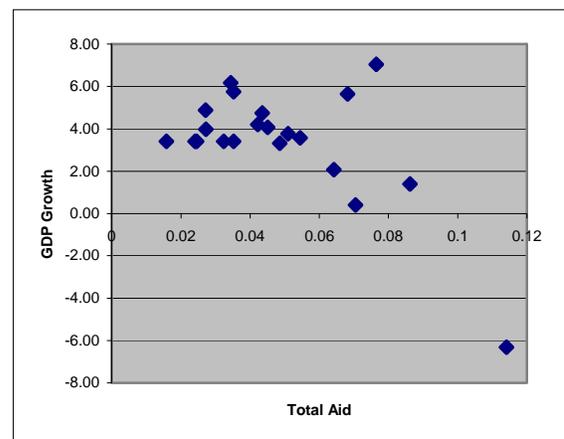
This, however, does not guarantee the independent variables are truly exogenous. To minimize this potential problem, the current values of the independent variables were replaced with their lagged variables. The DW test was applied and again

showed no presence of serious autocorrelation. Again, the OLS estimates can be used. Simple correlations were then tested among the explanatory variables. Each of the variables was shown to be adequately independent with the exceptions of total investment (IY), as well as the relationship between grants (AIDGR) and loans (AIDLN). These variables were removed and the test redone to remedy the potential multicollinearity problem.

Additionally, the Tanzania estimates were quite satisfactory reporting high R^2 values. The R^2 values for equations with current and lagged regressors were 0.45 and 0.50. Equations 6.2 and 6.4 using the lagged regressors and aid decomposed into grants and loans, for example, reported R^2 values of 0.62. Both results can be considered reasonably acceptable because a large number of independent variables have been excluded which could explain variation in the dependant variable. Much like Bolivia, these variables could include, for example, technological change or intellectual property policy change. The significance of the y-intercept also proved the absence of many explanatory variables. The variables used in this study were the ones most pertinent for the study of foreign aid

The ineffectiveness of aid was highlighted once again through Tanzania. Using current regressors, foreign aid had a *negative* correlation with GDP growth statistically significant at the 5 percent level. This translates into aid actually decreasing the growth of Tanzania (See Chart 6).

**Chart 6
Tanzania's GDP Growth vs. Total Aid**



When aid is decomposed into grants and loans a much more clear picture of aid is exposed. Loans are negatively correlated with GDP growth using both

current and lagged regressors at the 5 percent level. However, on the other hand, lagged regressors report grants having a positive correlation with GDP growth statistically significant at the 10 percent level. The deficit/GDP ratio was insignificant in relation to GDP growth. Combining these three methods of delegating foreign aid show money given in the form of grants has been proven most effective.

Additionally, in contrast to the Bolivian regression results, population growth was negatively correlated with GDP growth using current values. This translates into a growing labor force does not guarantee a growing economy. Also, using lagged values of total investment and domestic savings are both negatively correlated with GDP growth. Because of the high correlation of total investment with each of the explanatory variables, the tests were done with it removed. The results only emphasized the previous results. Additionally, removing grants or loans from the estimate did not affect the overall results of the test.

CONCLUSIONS AND RECOMMENDATIONS

Recent studies for the effectiveness of foreign aid have been searching for the method that maximizes the growth of the recipient countries. Past studies have shown that aid has done little, if anything, to bring about growth in developing countries. This is becoming increasingly important as the total amount of aid is far below expected levels among the developed countries, most notably the U.S.A. The most current studies from the World Bank and United Nations have focused on giving aid to counties who are both among the poorest in the world and have strong economic policies in place. This combination is the one that maximizes the effectiveness of foreign aid. Aid has seemed to go to waste within those countries with poor policies, or corrupt governments. GDP growth rate is one measurement of the poverty in a country, but is not the only. GDP growth does not always fully capture the living conditions of the population, but is one that measures the economic well-being of the country at large.

This regression emphasizes the ineffectiveness of foreign aid. According to the findings of this study, in Bolivia, aid has no impact on growth, while in Tanzania, the situation was even worse as aid was negatively correlated with GDP growth. This falls in line with the majority of previous tests. Yet, in contrast to Dollar and Burnside (1997), the foreign aid given to Bolivia after the economic policy reform of the late 1980s

was still not significantly correlated with GDP growth. During that time, Bolivia passed a number of laws that liberalized the economy significantly and consolidated economic stability through the application of a policy of fiscal and monetary discipline. Additionally, Bolivia liberalized their markets for goods and services, along with their interest rates, as well as established a flexible exchange rate and implemented a tax reform law. Based on the work of the World Bank, these adjustments should increase the effectiveness of their foreign capital inflow. Collier and Dollar (1998) claim "the combination of good policy and aid produces especially good results in terms of growth and poverty reduction" (Dollar and Collier, 32). This study of Bolivia is not entirely in line with that conclusion. However, like most of South America, Bolivia is hampered with a large national debt. This study shows that deficit reduction is a key to increasing the GDP growth rate of Bolivia.

Much like Bolivia, Tanzania initiated new economic policies with the aid of the World Bank and IMF, and instituted democracy in the last decade, however, foreign aid still negatively correlated with GDP growth. Again, aid is wasted. However, foreign grants give some example of what can positively help Tanzania. The grants do not force the government to repay the money, which, based on lagged regressors, was shown to be helpful to the Tanzanian economy.

Moreover, this study again highlights the need for foreign aid reform. The traditional manners in which it is given are highly ineffective. Even after economic reform in Bolivia, or political reform in Tanzania, foreign aid is not guaranteed to be beneficial to the economy and population at whole, which is the under riding purpose of giving foreign aid in the first place. However, foreign aid can help, but the manner in which to give it will change from country to country. This study shows how deficit reduction is a key for Bolivia, and grants are helpful in Tanzania. The development needs of countries vary a great deal from case to case. This conclusion echoes that of Jeffrey Sachs and the U.N. (Economist 69-70). However, William Easterly, formerly of the World Bank, critiques that this approach is overly ambitious and certain to be a disappointment, especially in sub-Saharan Africa where the situation is the worse (Economist 70). Regardless, there is no one, universal answer for each developing country in solving the foreign aid effectiveness problem, and the only solution could come in the form of carefully tailored, individual development strategies.

This focused study reveals that the study of foreign study is no where near complete in the sense that there are no concrete answers of the way that maximizes the effectiveness of foreign aid. The scope of the report is still very limited, focusing only two countries. This study leaves out many explanatory variables that influence GDP growth. Additionally, there is still difficulty in finding consistent data for many developing countries, most commonly in sub-Saharan Africa. These limitations are important to this study, and show what needs to be addressed in future expansions of the report. Also, foreign can be broken down into many sub-groups, such as food aid, disaster aid, commodity aid or project aid, which could help focus in the most beneficial methods of delivering aid.

REFERENCES

- Blustein, Paul. "Bush Seeks Foreign Aid Boost." *The Washington Post*. 15 March 2002.
- Burnside, C. and D. Dollar, 1997, "Aid, Policies and Growth," Policy Research Working paper, no. 19777, The World Bank.
- Burnside, C. and D. Dollar, 1998, "Aid, the Incentive Regime, and Poverty Reduction," Macroeconomics and Growth Group, The World Bank.
- Burnside, C. and D. Dollar, 2004, "Aid, Policies, and Growth: Revisiting the Evidence," World Bank Policy Research Working paper, no. 3251, The World Bank.
- Chenery, H. B. and Strout, A. (1966) Foreign assistance and economic development, *American Economic Review*, **56**, 679-733.
- CIA World Factbook. <http://www.cia.gov/cia/publications/factbook/>
- Dollar, D. and Collier P, 1998, "Aid Allocation and Poverty Reduction," Development Research Group, The World Bank.
- Dollar, D. and Levin, V, 2004, "The Increasing Selectivity of Foreign Aid, 1984-2002," World Bank Policy Research Working Paper 3299, The World Bank.
- Dollar, D. and Easterly, W, "The Search for the Key: Aid, Investment, and Policies in Africa," Development Research Group, The World Bank.
- The Economist*. Recasting the case for aid, January 22, 2005, 69-70.
- Friedman, M. (1964) Foreign economic aid: Means and objectives, in *The United States and Developing Economies*, (ed.) G. Ranis, W. W. Norton and Company, New York.
- Islam, Anisul. (1992) Foreign aid and economic growth: an econometric study of Bangladesh, *Applied Economics*, **24**, 541-4.
- Mbaku, John (1993) Foreign aid and economic growth in Cameroon, *Applied Economics*, **25**, 1309-1314.
- Mosley, P. (1980) Aid, savings and growth revisited, *Bulletin of Oxford University Institute of Economics and Statistics*, **42**, 79-95.
- Papanek, G. F. (1973) Aid, foreign private investment, savings, and growth in less developed countries, *Journal of Political Economy*, **81**, 120-30.
- The White House. The Millennium Challenge Account. <http://www.whitehouse.gov/infocus/developingnations/millennium.html>
- Transparency International, *Global Corruption Barometer*. www.transparency.org/surveys/barometer/dnld/barometer2003_release.en.pdf
- Wolfenson, James, *The Other Crisis*, World Bank, October 1998, quoted from *The Reality of Aid 2000*, (Earthscan Publications, 2000), p.10.
- World Bank Research*. Rethinking the Money and Ideas of Aid. <http://www.worldbank.org/research/aid/overview.htm>
<http://econ.worldbank.org/prr/subpage.php?sp=2477&print=1>

Appendix A

Regression Results: Bolivia I

	4.1	4.2	5.1	5.2	6.1	6.2	7.1	7.2
Intercept	-18.66 (-5.432) ^{***}	-17.18 (-4.662) ^{***}	-18.66 (-5.432) ^{***}	-17.18 (-4.662) ^{***}	-18.665 (-5.337) ^{***}	-17.015 (-4.597) ^{***}	-18.665 (-5.337) ^{***}	-17.015 (-4.597) ^{***}
PG	8.924 (4.917) ^{***}	10.324 (5.122) ^{***}	8.924 (4.917) ^{***}	10.324 (5.122) ^{***}	8.941 (4.69) ^{***}	9.794 (4.652) ^{***}	8.942 (4.69) ^{***}	9.794 (4.65) ^{***}
IY	1.285 (0.087)	-30.998 (-2.021) [*]			1.082 (0.068)	-25.87 (-1.577)		
SY			1.285 (0.087)	-30.998 (-2.02) [*]			1.082 (0.068)	-25.871 (-1.577)
AID	16.09 (0.49)	21.982 (0.59)	17.376 (0.4412)	-9.016 (-0.197)				
Grants					8.06 (0.038)	214.22 (0.993)	9.143 (0.043)	188.35 (0.846)
Loans					18.52 (0.262)	-32.966 (-0.45)	19.603 (0.282)	-58.837 (-0.821)
Deficit								
R-squared	0.57	0.55	0.57	0.55	0.57	0.567	0.57	0.567
n	33	32	33	32	33	32	33	32
***	Denotes Significant at 1%							
**	Denotes Significant at 5%							
*	Denotes Significant at 10%							

Regression Results: Bolivia II

	DEFICIT EQUATIONS				YEARS 1971-1987				YEARS 1988-2003			
	4.1	4.2	5.1	5.2	4.1	4.2	5.1	5.2	4.1	4.2	5.1	5.2
Intercept	-16.406 (4.334)***	-11.126 (4.382)***	-16.406 (4.334)***	-19.126 (4.382)***	-30.83 (5.233)***	-34.453 (5.310)***	-30.83 (5.233)***	-34.45 (5.310)***	-10.623 (4.967)***	-4.174 (3.248)***	-10.624 (4.967)***	-4.175 (3.248)***
PG	8.486 (4.485)***	8.955 (4.518)***	8.486 (4.485)***	8.955 (4.518)***	18.044 (5.388)***	22.509 (6.534)***	18.044 (5.388)***	22.509 (6.535)***	4.106 (2.888)***	3.688 (2.79)***	4.106 (2.888)***	3.688 (2.79)***
IY	-3.846 (-0.241)	-43 (-2.807)***			-47.712 (-1.92)*	-103.47 (-3.96)***			10.465 (0.718)	-20.33 (-1.907)*		
SY			-3.846 (-0.241)	-43.003 (-2.807)***			-47.712 (-1.925)*	-103.47 (-3.96)***			10.465 (0.718)	-20.33 (-1.907)*
AID	11.74 (0.352)	17.644 (0.488)	7.894 (0.192)	-25.358 (-0.585)	-51.313 (-0.725)	106.85 (1.383)	-99.025 (-1.37)	3.377 (0.044)	85.129 (1.629)	68.588 (1.488)	95.594 (1.527)	48.256 (0.912)
Grants												
Loans												
Deficit	-3.706 (-0.862)	-9.314 (-2.237)**	-3.706 (-0.862)	-9.315 (-2.237)**								
R-squared	0.58	0.62	0.58	0.62	0.8	0.803	0.801	0.803	0.45	0.647	0.453	0.647
n	33	32	33	32	17	16	17	16	16	15	16	15
***	Denotes Significant at 1%											
**	Denotes Significant at 5%											
*	Denotes Significant at 10%											

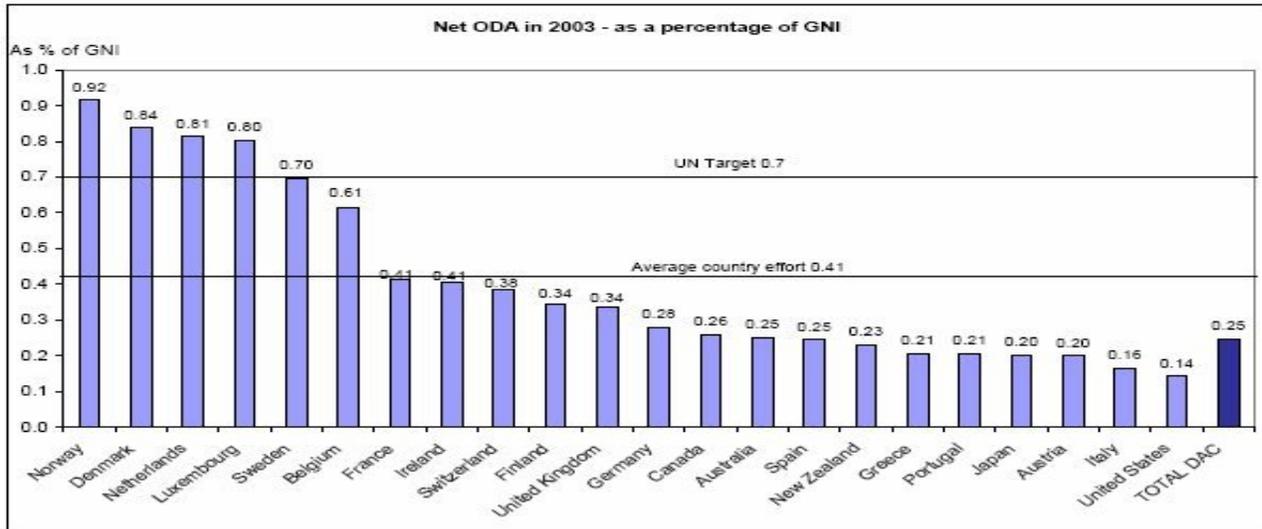
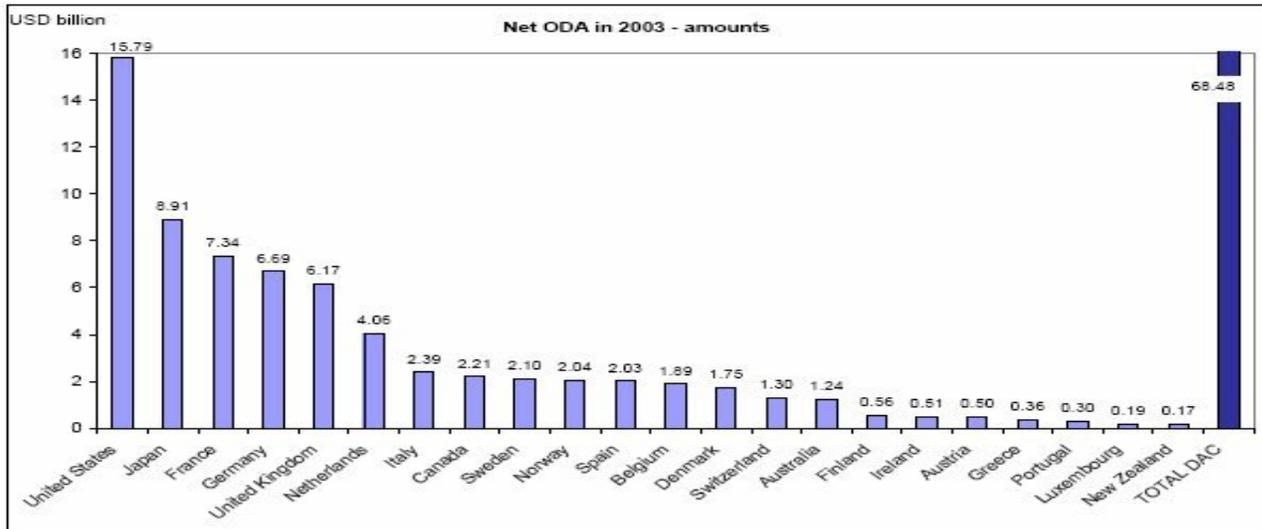
Appendix B

Regression Results: Tanzania I

	4.1	4.2	5.1	5.2	6.1	6.2	7.1	7.2
Intercept	13.171 (3.767)***	15.488 (3.612)***	13.171 (3.767)***	15.488 (3.612)***	13.138 (3.644)***	15.005 (4.082)***	13.138 (3.644)***	15.005 (4.082)***
PG	-2.567 (-1.98)*	-1.631 (-1.042)	-2.567 (-1.982)*	-1.631 (-1.042)	-2.528 (-1.87)*	-1.104 (-0.815)	-2.528 (-1.87)*	-1.104 (-0.815)
IY	4.186 (0.227)	-37.125 (-1.86)*			3.335 (0.170)	-48.092 (-2.738)**		
SY			4.186 (0.227)	-37.125 (-1.864)*			3.335 (0.170)	-48.092 (-2.738)**
Aid	-65.924 (-2.363)**	0.2037 (0.0066)	-61.737 (-3.156)***	-36.921 (-1.68)				
Grants					-53.493 (-0.170)	160.659 (2.402)**	-50.158 (-0.747)	112.567 (1.869)*
Loans					-70.733 (-1.807)*	-62.131 (-1.74)*	-67.398 (-1.811)*	-110.223 (-3.263)***
Deficit								
R-squared	0.49	0.44	0.49	0.44	0.49	0.62	0.49	0.62
Observations	21	20	21	20	21	20	21	20
***	Denotes Significant at 1%							
**	Denotes Significant at 5%							
*	Denotes Significant at 10%							

Appendix C

Aid From Donor Countries



Source: OECD, 16 April 2004.