# 'The swarm principle': A sub-national spatial analysis of aid targeting and donor coordination in sub-Saharan Africa

Michael G. Findley
Department of Government
University of Texas at Austin
BAT 3.108, Austin, TX78712
512.232.7208 (p); 801.310.6762 (m)
mikefindley@austin.utexas.edu

Josiah F. Marineau
Department of Government
University of Texas at Austin
BAT 2.116, Austin, TX 78712
josiah.marineau@utexas.edu

Joshua Powell
Development Gateway
1889 F Street, NW, 2nd Floor
Washington, DC 20006
jpowell@developmentgateway.org

Catherine Weaver
LBJ School of Public Affairs
University of Texas at Austin
SRH 3.358, Austin, TX 78712
ceweaver@austin.utexas.edu

## Author Bios

Michael G. Findley is an associate professor of political science at the University of Texas-Austin. Josiah F. Marineau is a PhD candidate in political science at the University of Texas-Austin. Joshua Powell is the director of innovation at Development Gateway. Kate Weaver is Associate Professor and MGPS Graduate Advisor at the LBJ School. Authors listed alphabetically.

## Abstract

Do donors effectively target aid on need in the spatial placement of foreign aid projects? To answer that question, we present a framework for assessing the quality of aid targeting sub-nationally. If donors cluster projects in areas with concentrated need, or spread out projects in areas of diffuse need, then we conclude that donors are targeting aid well. To understand how underlying need may affect aid targeting, we examine multilateral donors, as the aid projects of these actors serve as most likely cases of effective aid targeting. Furthermore, because co-financing may be a mechanism by which donors coordinate their efforts and improve aid targeting, we examine whether the frequency of donor co-financing increases the quality of aid targeting. For the first time, subnational geo-referenced foreign aid data for the World Bank (WB) and African Development Bank (AfDB) are available, making it possible to map the placement of foreign aid along with subnational poverty levels. Results indicate that problems with inaccurate targeting of needs abound. There is little evidence that multilateral donors or recipient countries with a higher frequency of co-financed activities within achieve better overall aid targeting.

Keywords: Foreign aid, geocoding,, cofinancing, aid targeting, Africa, multilateral donors

# Introduction

In youth soccer, children inevitably swarm around the ball, regardless of its location on the field. Not yet sufficiently mature or well-coached, the children are unable to distinguish when it is ideal to cluster together and when it is better to space themselves strategically in order to increase their chances of scoring a goal. Kids crowd around the ball, hoping just to kick it – not caring whether the ball advances or moves backward. Many have suggested that foreign aid donors follow a strikingly similar pattern as they have historically failed to coordinate their efforts. Instead, each donor may attempt to capture headlines with high-profile projects in the same areas, while failing to target the aid to areas that may need it the most (Easterly 2007, Knack and Rahman 2007).[1]

The donor community has gone to great lengths to improve aid targeting and the efficacy of aid efforts more generally by promoting donor coordination, alignment, and harmonization. In February 2003, over 40 multilateral and bilateral donors signed the *Rome Declaration on Harmonisation*, which was designed to improve coordination between donors and recipients and among donors themselves. From Paris, Accra, and Busan, more declarations and statements have followed, all of which underscore the importance of donor-donor coordination and the beneficial results that ostensibly would follow from increased donor coordination. While donor coordination can take a number of forms, we consider the extent to which the co-financing of aid projects improves the spatial placement of foreign aid projects.

Many researchers attribute the poor performance of foreign aid to the failure of donors to coordinate their efforts on a cross-national scale (see Easterly 2007, Knack and Rahman 2007, Bigsten 2006, and de Renzio and Mulley 2006). However, little research has examined whether donor coordination is associated with more effective targeting of aid towards areas of need at the

[1] Jean-Louis Sarbib of Development Gateway and Bjorn-Soren Gigler of the World Bank have made the soccer analogy frequently. The "swarm principle" is an incredibly apt description of popular feelings about donor coordination.

sub-national level. This gap in the extant literature stems from two main sources: most studies use aggregate donor aid flows rather than project-level data and there has been a chronic lack of usable sub-national aid data.[2] Fortunately, recent developments in geo-coding (assignment of geographic coordinates to project locations) provide an excellent opportunity to investigate whether donors effectively target aid on areas of need at the subnational level.

What is the appropriate way to measure the effectiveness of aid targeting at the subnational level? If need is concentrated within a country, it may be desirable to have multiple donors clustering in the needy area. Indeed, such clustering, although ostensibly signaling a lack of coordination, may be the best strategy, a point that appears lost in much of the discussion on spatial coordination of donor activities. However, if aid money is concentrated in relatively well-off areas to the neglect of needier areas, it strains credulity to conclude that donors are targeting aid in effective ways.

Conversely, if donors spread out their activities in different geographic areas *within* a country in which need is diffuse, donors may indeed be targeting effectively. The strategic spacing of donor activities throughout each country would allow donors to specialize and target their efforts in much the same way that a successful soccer team is composed of different positional players working in concert. If donors spread their efforts widely but need is concentrated, on the other hand, then this may not be a virtue and signals a lack of effective aid targeting. Subnational data on both need and development aid allow a closer examination of the extent to which donors successfully target their efforts.

Measuring the effect of need on aid targeting is one key goal in the present paper. As we expect this analysis to offer insights into some of the basic objectives of attempts to increase aid efficacy, such as the Paris Declaration, we examine more closely whether one of the OECD's stated mechanisms for facilitating aid delivery, *co-financing*, has facilitated greater levels of aid targeting. We

[2] Exceptions include Öhler (2013), Jablonski (2014), and Briggs (2014). However, each of these studies only examines sub-national aid in single countries, and do not consider the role of co-financing in improving donor targeting. .

propose that the frequency of co-financing among donors could facilitate the sharing of information in ways that may improve the quality of aid targeting within countries. More co-financing might lead to improved communication and greater cooperation between donor country offices as more than one donor has the ability to influence where and how projects are implemented, which are key concerns for many donors. Therefore, a second goal of this paper is to use donor co-financing as a way to measure if donor coordination is associated with more effective placement of aid projects.

This paper uses geo-coded aid data for two of the most prominent donors in Africa to provide greater insight into aid targeting within and across countries as well as the effects of co-financing. In particular, we examine geographic aid placement patterns by comparing the distribution of World Bank (WB) and African Development Bank (AfDB) projects at the first administrative division level. Specifically, we consider whether these donors are clustering their geographic efforts in areas of greatest need within a country – by examining the level of concentration of need – within our six case studies. If multilateral donors are responsive to the underlying level of need when allocating aid, as suggested by recent research on multilateral donors (Neumayer 2003, Easterly & Pfutze 2008) we are most likely to observe that relationship by examining the activities of these two organizations.

We find that effective aid targeting is not altogether common for the WB and AfDB. These donors appear to cluster their activities in areas of high need only in limited circumstances, often clustering instead in areas of low need. At other times, they spread out within countries, but do not cover the diffuse needs proportionally. Based on the six countries we examine, co-financing appears related to improved aid targeting in only one country, the DRC. While only an initial inquiry, the weak co-financing effect offers initial insights into the (lack of) efficacy of the solutions being proposed by the international community. While a full analysis is beyond the scope of this paper, an exploratory regression analysis confirms the overall finding that donors do not tend to target areas

of need. Instead, it shows that donors tend to target aid to more highly populated areas. Instead of targeting need, donors may target areas where the marginal return on investment is higher. This may lead donor to target areas with relatively higher levels of development, and perhaps to neglect the neediest areas within countries.

In what follows, we begin by discussing the current literature on aid targeting and donor coordination, and then lay out a conceptual and theoretical framework for the quality of aid targeting, along with the role of co-financing. We then use recent geocoded project data for the World Bank and AfDB, two donors that should be most likely to target aid on need, in conjunction with sub-national indicators of need, in Ethiopia, DRC, Kenya, Mozambique, Rwanda, and Tanzania. Our findings, supplemented by a regression analysis of the number of projects within each region of the six countries, suggest that little effective targeting occurs. Donors thus need to pay greater attention to the effectiveness of aid targeting.

## Aid allocation and targeting literatures

Existing literature on aid allocation is mostly negative in tone. A general consensus is emerging that donors do not target aid on the countries with the most need, but rather allocate aid on the basis of commercial and strategic interests (Alesina and Dollar 2000). This finding holds up against a variety of ways of measuring need. For example, Thiele et al (2007: 622) examine how effectively donors target needs as measured by the millennium development goals (MDGs). The United States and Japan were found to have the least effective aid allocation in relation to the MDGs. Further, the study found that "MDG-related indicators of need have hardly shaped the allocation of aid by donors such as Denmark, which are widely perceived to be superior donors because of their strong poverty orientation as measured by per capita income of recipient countries."

Using poverty alone as the variable of interest does not improve evaluations of donor targeting of aid. Bilateral donors devote only 27.6% of aid dollars to the poorest quartile of aid recipients and 67% to the poorest half, while multilateral donors devote 36.6% to the poorest quartile and 78.7% to the poorest half (Nunnenkamp and Thiele 2006). The authors find little evidence supporting the view that aid is targeted effectively. Collier and Dollar (2002) similarly derive an efficient allocation of aid – based on poverty – and find that current allocation is substantially different, with the poorest 74% of individuals receiving only 56% of aid. The study posits that a poverty-efficient allocation of aid would increase the number of individuals lifted out of poverty from 30 million to 80 million each year.

A third measure of effective targeting – national policy and governance – provides a mixed picture of the effectiveness of aid allocation. Berthelemy and Tichit (2004: 253) find that "most donors pay a great attention to political governance when making their aid decision" and that aid tended to flow toward democracies. However, the same study found that aid allocation is substantially influenced by international trade ties and colonial linkages. Canavire et al (2005) found that policy orientation depended upon the measure of effective governance. A separate study, however, found that donors have an overall weak policy orientation, and generally fail to reward governments for sensible improvements in policies (Nunnenkamp and Thiele 2006).[4]

When aid is distinguished between bilateral and multilateral flows, however, there is more evidence that multilateral donors target aid more effectively than bilateral donors. Dollar & Levin (2006) show that multilateral donors between 2000 and 2003 became more selective in targeting aid on countries with more rule of law and democracy than they were between 1984 and 2000. Similarly, the World Bank on the whole appears to target more programmatic aid on well-governed countries,

although different lending institutions within the World Bank like the International Development Association target these countries less (Winters 2010). Therefore, the literature on the determinants of multilateral aid allocation provide some evidence that, unlike bilateral donors[5], multilateral donors tend to target aid more effectively at the national level.

A small number of path-breaking studies have looked at aid allocation by multilateral and bilateral donors at the sub-national level. Jablonski (2014) examines World Bank and African Development Bank aid projects between 1992 and 2010, and finds that these donors biased aid project locations towards the governing party's political base. Another study using multilateral and bilateral donor information finds that aid was similarly allocated towards the governing party's base in Kenya between 1989 and 1995 (Briggs 2014). However, these studies only consider aid to a single country (Kenya) and overlook the possible role of donor coordination in improving the placement of aid projects. Indeed, a considerable amount of attention has been given to donor coordination in the policy community as a way to overcome the problems with aid delivery. We next consider that literature and the results of donor coordination.

## Donor coordination and aid delivery

Partly as a response to concerns about poor aid allocation, the Paris Declaration of 2005 sought to improve donor coordination in order to "eliminat[e] duplication of efforts and rationaliz[e] donor activities to make them as cost-effective as possible" (OECD 2005). However, in spite of recent criticism and the efforts of the more than 100 Paris Declaration signatories, it still appears that "all donors seem to want to give to all sectors in all countries" (Easterly 2007). In fact, the increase in the number of donor organizations has outstripped the increase in foreign aid levels since 1975 (Bigsten 2006). The opinions in the literature diverge in explaining the causes of poor

[5] However, Claessens et al. (2009) find that the selectivity of aid allocations of bilateral donors has improved over time.

coordination, as well as the resultant financial and social costs to uncoordinated donor behavior. The current literature is limited, moreover, in that it examines coordination exclusively at the national or sectoral (e.g., health, education) level, with almost no research occurring at a sub-national level.

One explanation for poor coordination is a lack of information on donor activities. Donors fail to coordinate not because they are unwilling to cooperate with each other, per se, but rather because they are unaware of opportunities for collaboration through projects that are supported by other donors (Halonen-Akatwijuka 2007). Alternatively, donors may fail to coordinate because they are unwilling to relinquish control over aid-funded activities. This may be particularly true in countries with central and local governments that are perceived to be weak or corrupt (Buse 1999, Platteau 2004). Donors may feel that, if they are not able to directly track funds through the implementation process, elite capture of aid funding may occur (Platteau 2004). A third common explanation for uncoordinated activity is posited by Easterly (2007): donors fail to coordinate their programs because they want the recognition of having a direct presence in every country and sector. Donors have a direct interest in spending their entire budget in order to prevent budget decreases in subsequent years (White and Morrisey 1997). A fourth explanation is that donors refuse to coordinate as their aid flows are largely determined by national diplomatic priorities, rather than altruistic mechanisms (Alesina and Dollar 2000, Woods 2005). Finally, the proliferation of aid donors creates the incentive for some donors to free ride on the efforts of others, leading to a lack of coordination in aid delivery (Rahman and Sawada 2012).

Like the literature on aid allocation, the overall negative findings of the current literature on donor coordination rests on the key assumption that the state is the proper unit of analysis in examining donor behavior.This assumption may not be appropriate in many cases, however, as the

lack of donor coordination at the national level does not preclude the possibility that donors coordinate aid projects at the subnational level. In order to definitively assess the effectiveness of donor behavior, sub-national variations in aid allocation and recipient need must be addressed.

## Aid targeting and co-financing

The *Rome Declaration on Harmonisation*, followed by declarations and statements in Paris, Accra, and Busan, all emphasize the importance of improving donor-donor and donor-recipient relations and working practices. The *Paris Declaration* proposes joint financial arrangements as a specific mechanism whereby donors can improve coordination and aid delivery more generally. If the international emphasis on coordination as a solution to problems with aid delivery is correct, then donor coordination should result in better geographical placement of foreign aid projects, suggesting that donors are working together when they target need more effectively. Therefore, whether coordination enables donors to target need is one of the key outcomes of interest in the development literature and is a key consideration in what follows.

This paper examines the relationship between the level of need and aid targeting in two stages. We begin by conceptualizing the quality of aid targeting at a subnational level and then consider co-financing as a possible explanation for how donors improve the placement of aid projects. We argue that the quality of aid targeting depends upon the level of geographic clustering and the geographic concentration of need – with incidence of donor co-financing potentially explaining and complementing the two key factors.

Prior to developing the model of effective aid targeting, it is worthwhile to describe our assumptions about the objective function of these donors. We posit that the WB and AfDB are incentivized to reduce poverty, and argue that both donor statements and empirical evidence support this characterization of the objective function. To begin with, both of these institutions

highlight the importance of poverty reduction: The WB states that "reducing poverty in all its dimensions is at the core of the World Bank's work,"[7] while the AfDB has likewise declared that poverty reduction is its overarching goal (AfDB 2004). The empirical record helps to substantiate that these donors actually pursue this policy goal. Multilateral assistance is generally more effective in promoting development than bilateral aid (Maizels and Nissanke, 1984), while more recent studies have shown that at the national level multilateral development banks target aid on the basis of economic need (Neumayer 2003).[8] Others have found that multilateral development banks are more likely to follow OECD best practices by focusing on recipient needs rather than the goals of donors (Easterly & Pfutze, 2008, Martens et al., 2002). So, positing poverty reduction as the objective function of the WB and AfDB is consistent with both the policy statements of these doors and previous research.

Next, we articulate a model of effective aid target as a means to evaluate whether multilaterals are in fact incentivized to reduce poverty. As a first step, the effectiveness of aid targeting can be illustrated through a contingency table, as depicted in Table 1**.** As the table shows, donors can effectively target their activities whether working in the same areas or different areas, depending upon the distribution of need within a country. If there is one province of the country that contains the majority of the nation's poor, we should not expect a donor to work in a different province simply because another donor has already initiated activities in the poorest region. Conversely, if poverty is evenly distributed throughout the country, it makes little sense for each donor to focus in the same narrow areas of the country while needs remain unmet elsewhere.

[7] World Bank, "Poverty," located at < http://www.worldbank.org/en/topic/poverty.> Accessed on October 27th, 2014 at 11:32am.

[8] These results have been challenged (Canavire et al 2005), while some have found evidence that bilateral donors can influence the actions of multilateral banks (Kilby 2006). At the very least, there is a need for more research on the topic of the objective function of multilateral donors.

**[TABLE 1 ABOUT HERE]**

Our approach to conceptualizing aid targeting appears consistent with some other approaches that identify targeting based on need concentration. For example, Barrett and Clay (2001) found that targeting errors of inclusion – aid to non-needy individuals – and exclusion – failure to provide aid to those in need - were common in Ethiopia. A study of food aid targeting in Mozambique also found similar targeting errors (Tschirley et. al 1996).

This conceptualization also appears consistent with the strategies outlined in the Accra Agenda for Action, in which the stakeholders outlined strategies to coordinate aid in ways that would target it more effectively. They state:

> The effectiveness of aid is reduced when there are too many duplicating initiatives, especially at country and sector levels. We will reduce the fragmentation of aid by improving the complementarity of donors' efforts and the division of labour among donors, including through improved allocation of resources within sectors, within countries, and across countries. [Paris Declaration and Accra Agenda 2005/2008]

Thus, if donors coordinate their efforts effectively, we should expect that donors work together in areas of concentrated need and spread out to effectively target areas of diffuse need.

We have thus far only attempted to conceptualize effective aid targeting, which raises the question of what might explain why some aid projects are targeted effectively while others are not. The suggestion here is that donor coordination can increase the effective targeting of aid projects. Two potential obstacles to effective targeting that improved coordination can help overcome include a lack of information on the activities of other donors (Halonen-Akatwijuka 2007) and unwillingness to share credit or responsibility for project implementation (Easterly 2007, Platteau 2004). Given the proper institutions and incentives, it is possible that these problems can be overcome.

If targeting problems exist because of information problems or credit-claiming incentives, and if improved coordination may serve to overcome them, we expect that higher levels of co-financing could lead to better overall spatial coordination and targeting of sub-national need. Co-financing – even on a small sub-set of donor projects – could be a key factor in explaining overall coordination by solving two important problems. First, co-financing may improve coordination by facilitating communication between the donor-country offices, increasing awareness by the donors of each other's activities. Second, co-financing activities may improve coordination by creating a cooperative environment between the two donors, ameliorating concerns about maintaining control over activities, having a broad presence within countries, and remaining committed to organizational or national goals.

While overcoming such challenges may be difficult politically, the international community seems to be banking on this as an important component of effective aid delivery. In the OECD's guidelines, *Harmonising Donor Practices for Effective Aid Delivery*, an entire chapter is devoted to the topic of "delegated cooperation" (DAC Guidelines 2003), in which best practices are recommended for lead and delegating donors. At the heart of these guidelines is an emphasis on communication and mutual benefit. Thus, as donors engage each other more often and work out mutually beneficial arrangements, some of the information and credit-claiming problems should be ameliorated. A reasonable expectation is that positive spillover effects should accrue outside of the specific projects being co-financed, such that donors generally work together more often over time and therefore more effectively coordinate their activities throughout a country.

Given the international community's guidelines for increasing levels of co-financing, a reasonable question is thus: does co-financing improve the effective targeting of foreign aid

placement geographically in a country? We now consider this using new subnational georeferenced foreign aid data.

# Data and research design

## Geo-coded aid data

For the first time, geo-coded data is now available for World Bank projects worldwide between the years 1998-2011. Additionally, African Development Bank (AfDB) projects from 2008-2011 have also recently been geo-referenced in six African nations – Ethiopia, Kenya, Mozambique, Democratic Republic of Congo (DRC), Rwanda, and Tanzania. These data were created using the UCDP/AidData Geo-Referencing Methodology introduced in Strandow et al (2011) and first applied in Findley et al (2011), allowing geo-coded projects to be compared across donors.

This paper uses the recently created geo-coded AfDB and World Bank datasets to examine aid targeting at a sub-national level. Geographic patterns of donor activities are compared in each country to examine whether donors tend to work in the same areas or whether they instead specialize geographically. After establishing the quality of aid targeting, we compare it with levels of co-financing to determine what effect coordination may have.

The goal of analyzing the aid targeting patterns of the WB and AfDB is to make broader inferences about the aid targeting of donors in general. The WB and AfDB contributed a significant portion of aid to the 6 countries under examination, contributing 21% of all aid sent to the DRC between 1998 and 2011; for Ethiopia during the same time period, 33%; Kenya, 23%; Mozambique, 17%; Rwanda, 24%; and for Tanzania, 26%.[10] These donors thus account for a significant portion of

[10] Authors' calculation. Data taken from www.aiddata.org, last accessed 30 May 2013.

aid and activities sent into these countries, and provide an indication of the quality of aid targeting more generally within these countries.

## Geo-coding methodology

The dataset used in this research represents the most thorough and accurate geo-coded data produced to date. Each project was hand-coded by two individuals based off of multiple project documents - including Project Appraisal Documents, Environmental Impact Assessments, and Project Papers. After two initial rounds of coding, the work of both geo-coders was arbitrated into one final data set, resulting in data that is both exhaustive and quality-controlled. For all data, Task Team Leaders and Project Managers were contacted for clarification when locations could not be determined from available project documentation. The use of such extensive and varied documentation represents a substantial improvement over previous geo-coding efforts, which gathered location information exclusively from project titles and abstracts (Findley et al., 2011).

The UCDP/AidData methodology distinguishes between coordinates based on a precision-coding system that ranges from point locations - i.e. cities or dams - through first and second administrative divisions - such as provinces and districts, respectively - to the country level. National projects are further differentiated between projects intended to benefit an entire country - such as a national anti-HIV campaign - and aid money granted directly to the central government - e.g. budget support (Strandow, et al., 2010). Three additional precision categories are used to differentiate between levels of certainty. The precision categories are as follows:

**1-2**: Used when a location lies within (1) or near (2) a specific populated place or object.

**3**: Used for a district or municipality.

**4-5**: Used for a specific province (4) or a greater region (5)

**6**: Used when a project is national in scope.

**7**: Used when no location is given or location is unclear[11].

**8**: Used when aid flows directly to a government entity.

The geo-codes for each project are linked to all other project data, including commitment amount, dispersal amounts and dates - when available - primary, secondary and tertiary sectors, approval and closing dates etc. This extensive project data allows us to examine not only project locations, but also intensity and type of locational aid commitment for each donor. Thus, donor project targeting can be investigated spatially and monetarily. Finally, because the UCDP/AidData methodology also captures the administrative divisions governing each point location, we can examine the effects of geographic coordination in a more rigorous, standardized way.[12]

## Sub-national indicators of need

In order to determine whether donors are clustering their activities in areas of greatest need, we use sub-national indicator data on poverty. Clearly, there are other potential variables that may be of interest, but poverty data is largely available sub-nationally within the countries of interest and may present an acceptable proxy for some other variables of interest.

Poverty data is collected from the HarvestChoice Lab's Poverty Maps and Data from 2005.[13] We chose to use HarvestChoice because it is a consistent measure of poverty across countries. The

[11] Because multiple project documents were reviewed in coding these projects, there are no projects in this data set with precision code 7. In addition to searching project documents, Task Team Leaders were contacted from the World Bank when clarification was needed beyond what was available in the documentation.

[12] Presently, the geocoded data for seventy-nine World Bank IDA countries is available through both the World Bank (at maps.worldbank.org) and AidData (at open.aiddata.org). In total, the AidData/World Bank Mapping for Results Partnership has resulted in 2,608 geocoded active projects resulting in over 15,000 sub-national locations. The data available for the AfDB is not as extensive. Thus, we use only the six countries presented in this paper.

[13] Poverty data is available at the second administrative division level only for select countries. Thus, we use poverty data at the first administrative division level for all countries in our sample.

measurement in each country is the headcount ratio, which measures the proportion of individuals living on less than $1.25 per day.

## Measuring aid targeting

To evaluate the aid targeting of the World Bank and African Development Bank, we have used first-order administrative divisions to create project location counts.[14] Because a given project can affect more than one location, we code each of the locations and hereafter consider location counts.[15] Given that population size may affect the choice of project location, we weight each Bank's aid portfolio by population. Using these weighted counts, we can calculate simple correlations between World Bank and AfDB country portfolios. Thus, a strong positive correlation indicates high geographic clustering while a strong negative correlation would indicate that the donors tend to work in different areas of the country.

As discussed above, simply identifying donor clustering does not indicate that they are poorly targeted. We need to determine whether they are clustering in the most needy places. Because our measures of donor clustering and localized need can be evaluated at the first-order administrative division (ADM1) level, we calculate the correlation between levels of donor financing – defined as the count of project locations per ADM1 – and our measures of poverty. This will allow us to make a better determination about the overall quality of aid targeting, which will be evaluated differently for our spatially clustered and spatially diffuse project locations. We will examine targeting of need in three stages.

[14] Kenya has the fewest number of first-order administrative divisions, with 8, while Tanzania has the most, with 26. The average number of first-order administrative units is 13.3 among the six countries.
[15] The minimum number of project locations for an administrative unit in the dataset is 2 (Butare Province in Rwanda, while the maximum is 158 (Oromia region in Ethiopia). The mean number of project locations is 30.3, while the standard deviation is 28.5.

First, we use a Herfindahl Index, which provides a country-level measure of whether need is diffuse or concentrated within a country. The Herfindahl Index is defined as $H = \sum_{i=1}^{N} s_i^2$ where $N$ is the number of administrative divisions and $S$ is the share of the total poverty levels held by division $i$. A high Herfindahl Index indicates high geographic concentration of poverty, while a low index indicates a diffuse level of poverty. We use this measure primarily to determine whether there are pockets of needy areas, but it does not reveal information about precisely which areas are most needy.

Second, to understand better whether donors are targeting the right areas, we consider how well donors are targeting those concentrated areas of need. To do so, we use a simple correlation between the combined (WB and AfDB) number of project locations in an administrative division and the level of poverty in that region. A strong positive correlation between the number of project locations of the two donors and poverty suggests that donors are clustering in the most needy areas. A strong negative correlation indicates that the clustering is occurring in the least needy areas.

We also offer two alternative specifications to measure whether donors are targeting areas of concentrated need. First, we calculate the poverty concentration ratio, defined as the share of the three poorest divisions in the country, and the aid concentration ratio, defined as the proportion of project locations within these same three poorest divisions in the country. If the concentration of aid project locations is lower than the poverty concentration ratio, then this suggests that the administrative division is not receiving aid proportional to its poverty needs.

Additionally, because neither of these measures is perfect, we can also compare them informally. If there is a strong positive correlation between aid and poverty *and* the aid concentration ratio is greater than or equal to the poverty concentration ratio, we conclude that donors are

targeting the neediest parts of the country, perhaps alleviating their failure to specialize geographically.

After assessing overall targeting quality, we consider whether co-financing enhances donor coordination in the targeting of aid. To determine the frequency of co-financing, we examined the project appraisal documents for each African Development Bank project and the financial details from the project page of each World Bank project. For each project, we recorded whether the other donor was a co-financer, giving a score of 1 or 0. We then averaged the number for each donor country, giving the final co-financing score. For example, an average of 0 for an AfDB country would indicate that the World Bank was not a co-financer on any of the AfDB's active projects in that country. A country with 20 World Bank projects, three of which are co-financed by AfDB, would receive a score of 15%.

To examine the impact of donor co-financing on overall aid targeting, we averaged the co-financing scores of the World Bank and AfDB for each country and then plotted these scores with our measure of the quality of donor targeting. The plots include icons that indicate how well the donors are targeting the need within the country as measured by both aid-poverty correlation and concentration ratios. A diamond indicates effective targeting by both measures, yellow squares show good targeting by one measure (either aid-poverty correlation or concentration ratios), while red circles indicate poor targeting by both measures.

Finally, we present a brief regression analysis that attempts to explain the observed variation in donor coordination across countries. We first use a negative binomial model and then a fixed-effects negative binomial model as a robustness check. In addition to using the HarvestChoice poverty data, we used Sub-national African Education and Infrastructure Access Data (Smith et al. 2013) gathered by the Climate Change and Africa Political Stability (CCAPS) program. Using

measures for infrastructure access, such as access to electricity, improved water sources, and improved sanitation facilities, and net primary education enrollment to provide more indicators of need along with poverty measures. Finally, we include dummy variables for whether the administrative unit contains the nation's capital and for whether the country leader's home area is in the unit. The results of the analysis confirm the overall finding that donors do not tend to target aid to areas with higher levels of poverty, although they do seem to target area with fewer improved water and sanitation facilities. This provides some limited evidence of donors targeting areas of need.

## Empirical analysis

We begin with a visual examination and analysis of the spatial placement of projects in the six countries of interest in this paper. Figures 1, 2, 3, 4, 5, and 6 contain maps for Mozambique, Kenya, Tanzania, Rwanda, D.R.C., and Ethiopia.

**[FIGURE 1 ABOUT HERE]**

**[FIGURE 2 ABOUT HERE]**

**[FIGURE 3 ABOUT HERE]**

**[FIGURE 4 ABOUT HERE]**

**[FIGURE 5 ABOUT HERE]**

**[FIGURE 6 ABOUT HERE]**

These maps do not tell a single story, and although conclusions are easier to reach in some (e.g., Kenya), others are less straightforward (e.g., Rwanda). Therefore, we attempt to explain the

distribution of aid projects shown in these maps with the various statistics that we outlined in the previous section. The findings of this analysis are summarized in table 2.

*Table 2: Summary of the Findings of the Analysis*

**[TABLE 2 ABOUT HERE]**

## Do donors cluster?

We first consider the extent to which the WB and AfDB provide aid to the same administrative divisions. We find that there are two countries – Mozambique (-0.009) and Tanzania (-0.080) – that are weakly, negatively correlated, providing limited evidence that each donor is targeting different parts of the country. More striking, DRC (0.298), Kenya (0.502), Rwanda (0.317), and especially Ethiopia (0.816) each show strong correlations, indicating that both donors are working in the same areas within the country. This means that provinces with more World Bank locations are also likely to have more AfDB locations, while areas that may be less served by the World Bank will also have fewer AfDB project locations. These results alone may not tell the entire story, however, as the donors may be clustering activities in the most needy parts of each country, which would be a desirable outcome.[16]

## Do recipients have concentrated needs?

Before considering whether donor clustering occurs in the most needy areas, we first identify which countries have localized need by examining the Herfindahl index. In examining the concentration of need, we find that there is not substantial variation across countries. Tanzania

[16] The only correlation out of the six that is significant is for Ethiopia ($p = 0.0121$); this is unsurprising as the number of observations for each country is too low to be calculating significance tests in a reliable way. The average number of observations per test is 13.

(0.049) has the most diffuse needs, whereas the other five countries are clustered fairly closely with relatively higher concentration of need: Mozambique (0.092), Rwanda (0.091), Ethiopia (0.095), DRC (0.103), and Kenya (0.13). Poverty concentration ratios are quite similar to the Herfindahl index, but yield more variation: Tanzania (0.169), Rwanda (0.276) and Mozambique (0.313), Ethiopia (0.327), DRC (0.359) and Kenya (0.443). These two measures indicate that DRC and Kenya have higher concentrations of poverty relative to the other countries, though the differences are only strong in a few cases. We can conclude, at least, that Tanzania and Mozambique have less concentrated need than DRC and Kenya.

To summarize the donor concentration and recipient need concentration results just discussed, Figure 7 displays the clustering of activities relative to need concentration. As we see, WB/AfDB activities in Kenya are highly clustered, as is the need within the country. Tanzania, on the other hand, has both diffuse need as well as low WB/AfDB clustering of projects. Yet, as discussed below, aid projects in Tanzania are not targeted on the areas of need. Therefore, Tanzania is rated as having a low quality of aid targeting. The other countries appear between these extremes and are varied in their levels of effectiveness. Of course, we need to consider whether the clustering is in the areas of concentrated need or in other areas, which we now examine.

*Fig. 7: Measuring Aid Targeting Effectiveness by Clustering of Activities and Concentration of Need*

**[FIGURE 7 ABOUT HERE]**

## Are donors targeting effectively?

Do the WB and AfDB cluster their activities in the areas of greatest need? To do this, we first examine the correlation between the weighted project location counts and poverty in the various administrative districts, and then compare the aid and poverty concentration ratios.

In DRC, the two donors appear to target their aid to needy areas. The correlation between levels of aid and poverty is reasonably strong (0.363). Furthermore, the aid concentration ratio (0.441) is substantially higher than the poverty concentration ratio (0.359), suggesting that more aid is going to the three poorest divisions proportional to their share of the country's poverty.[17]

Although the correlation between aid and poverty in Kenya (0.269) is smaller but still relatively high, however, the aid concentration ratio (0.413) falls below the poverty concentration ratio (0.443) of Kenya's three poorest provinces. While not conclusive, it suggests that there is some lack of coordination by these two donors to target the areas of highest need within Kenya.

Ethiopia has an extremely high correlation of donor locations and moderately diffuse need. The correlation between poverty and aid is quite weak (0.066) and its concentration of aid (0.229) falls well short of its poverty concentration ratio in the same administrative divisions (0.327). Thus, while the two donors are going to similar places in Ethiopia, they do not appear to coordinate by working together in the areas of greatest need.

In Rwanda, there is only a very weak correlation between project locations and areas of need (0.024), suggesting that the donors are not effectively targeting needs. However, the three poorest regions receive a much larger share of the aid (0.395) proportional to their share of the poverty in

[17] Because there was no poverty data for the Maniema province as well as to avoid a negative bias in the result, we dropped the province from the aid concentration ratio. The aid concentration with Maniema included is .425, still substantially above the poverty concentration ratio for DRC

the country (0.276). Thus, the mixed evidence suggests that while the donors are not working together in a broad set of needy areas, much of their aid is at least going to the three poorest regions.

The correlation between aid and need in Mozambique is 0.146, suggesting that the two donors tend to work in more needy areas. On the other hand, the aid concentration ratio (0.298) is lower than the poverty concentration ratio (0.314), indicating that the three poorest regions are not receiving quite as much aid as they would proportional to the rest of the country if donors did in fact target the neediest areas.

Finally, in Tanzania, the correlation of aid and poverty is strikingly low (-0.246), suggesting that aid is not going to areas with poverty, but rather to less needy areas. The concentration ratios confirm this result, though the difference is not as stark. The aid concentration ratio is 0.166, just lower than the poverty concentration ratio of 0.169.

In sum, the data do not tell a consistent story. Donors appear to cluster in areas of high need in such cases as the DRC and Mozambique. They also spread out aid in areas of diffuse need, as in Tanzania. But when donors cluster, they sometimes do so in the least needy places. And when they spread out, they do not cover the diffuse needs very well. Nevertheless, the weak positive and negative correlations for Mozambique and Tanzania, respectively, could be due to a lack of variation on need concentration, and so further investigation of these relationships is necessary. The data thus far indicate a general lack of aid targeting in areas with the most need. We thus consider whether considering levels of WB and AfDB *co-financing* helps sort out the mixed results on aid targeting.

## Does co-financing improve aid targeting?

As we have discussed, we might expect co-financing on a higher proportion of projects to improve overall donor coordination regarding the targeting of aid both by improving reciprocal

knowledge of donor activities and increasing willingness to cooperate, sharing responsibility and credit for development outcomes. Thus, we hypothesized that countries with higher levels of co-financing would also have higher levels of effective aid targeting than countries that do not. Similar to the previous analyses, the overall results offer mixed support for this expectation about the effects of co-financing.

To begin, two countries lack co-financing between the WB and AfDB altogether. Kenya, where both donors flock to less needy areas, lacks co-financing, as well as Rwanda, despite having a high level of donor clustering despite diffuse need throughout the country. This lack of co-financing may contribute to the poor overall coordination of the donors' country portfolios as it may be symptomatic of an overall lack of communication and territoriality between the country offices. While the problematic nature of the aid targeting in these two countries fits with the hypothesized relationship with co-financing, it illustrates what may result from the lack of co-financing. To conclude that co-financing improves targeting, we would need evidence of cases in which significant co-financing occurs and donors then cluster in areas with concentrated need or spread out in areas with diffuse need.

In the DRC, the AfDB lists IDA as a co-financer on 1 of its 11 (9.09%) projects, while the AfDB does not co-finance any of the World Bank's projects in the country. While this does not represent a high level of co-financing, it is indicative of at least some communication between the donors in DRC, which may contribute to its moderately effective aid targeting. However, Ethiopia, with a slightly higher overall average donor co-financing (.066 compared to DRC's .046) is the least spatially coordinated of our countries (.836 compared to DRC's .314) and so provides a counterexample to the co-financing hypothesis.

Finally, Tanzania and Mozambique paint a mixed picture of the effects of co-financing on aid targeting. In Mozambique, the AfDB lists IDA as a co-financer on 3 of its 19 (15.79%) projects, while the World Bank cites AfDB co-financing on 3 of its 22 (13.64%) projects. In Tanzania, there is similarly a relatively high level of donor cooperation as the World Bank acts as a co-financer on 4 of 17 (23.53%) AfDB projects while the AfDB reciprocates as a co-financer on 3 of the 39 (7.69%). Thus, in both countries donors co-finance more, have diffuse need, and spread out the placement of their aid projects. While both cases appear to be favorable, it appears that Tanzania does not spread its aid out evenly as discussed in the previous section (correlation of aid and need is negative). Mozambique appears better on this count, though the connection between aid and poverty is not high. Due to the less concentrated needs in the two countries, we would expect correlations closer to zero and thus the two donors in both countries, while not spreading out perfectly, come closer to coordinating their activities than in other cases.

While these represent only initial results from a small sample of countries, there is limited evidence that a lack of co-financing is problematic. However, it is likely the case that greater levels of co-financing alone help donors target their aid activities better. These results are displayed in Figure 8, which should be interpreted by considering whether greater levels of co-financing are associated with more clustering that actually targets need, denoted by green-diamonds. DRC, with its moderate levels of co-financing, has the most effective aid targeting of the 6 countries we analyze. Yet Ethiopia also has moderate levels of co-financing, but relatively ineffective aid, represented by a red circle. Tanzania, also represented by a red circle, has relatively high levels of co-financing, but the aid to this country yields mixed results at best due to low concentration of aid relative to poverty and the low correlation of aid to poverty. Mozambique, Kenya, and Rwanda, represented in yellow, have varying levels of co-financing: High in Mozambique, but none in the latter two countries.

*Fig. 8: Donor Co-Financing Frequency and Correlation of Donor Activities*

**[FIGURE 8 ABOUT HERE]**

## Regression analysis

The findings of the analyses of the six countries demonstrate that donors tend not to target aid projects to the areas of greatest need. There is considerable variation between the countries on the quality of sub-national aid targeting, however. What, then, explains the observed patterns of aid targeting? While a thorough investigation of that question is outside of the scope of this paper, we present an exploratory analysis using a negative binomial regression and a negative binomial regression with country-level fixed effects[18] predicting the number of project locations per district along with a set of need variables used as controls. Our analysis confirms that poverty is not significantly related to the number of aid projects in a region. Instead, the logged population of the region is the strongest predictor of aid targeting. Additionally, access to electricity, improved water facilities, and net primary education rates, are significantly related to the number of projects in that region, but the correlations do not consistently indicate need targeting. The results of this analysis are displayed in table 3.[19]

*Table 3: Negative Binomial Regression Results*

[18] We estimate the fixed-effects negative binomial using the *–xtnbreg, fe-* command in Stata 13. However, Allison and Waterman (2002) argue that this command does not estimate a true fixed effects model. Instead they propose to use panel dummy variables to implement a fixed-effects estimator. Following their suggestion, we estimated a negative binomial model using dummy variables for each country as a further robustness check. The results differ from model two only in that the coefficients for improved water and improved sanitation become significant. Results available upon request.

[19] A likelihood ratio test confirmed the assumptions of the negative binomial regression. Results available upon request.

**[TABLE 3 ABOUT HERE]**

As table 3 shows, the relationship between the number of projects and the logged population of the region is highly significant, with a p-value of less than 0.01 in both models. Poverty levels within the region have a small, negative relationship with the number of projects per region, but the relationship is not significant. Regions that contain the national capital and the leader's home province receive fewer projects than others, but the relationship is also not significant. Interestingly, regions with less access to improved water and sanitation facilities are significantly related to the number of projects in the region in the first model. While these variables are not significant in the fixed effects model, the signs are in the same direction. Access to electricity has no significant relationship with the number of aid projects. Finally, both models suggest that a positive, significant relationship exists between regions with higher rates of net primary education enrollment and the number of projects they receive.

This analysis helps shed some light on the observed patterns of aid targeting across the six countries. The regions with larger populations tend to receive more aid projects than regions with smaller populations. Given that the poverty variable is not significant, it is not clear that the populations that receive the aid projects have the most need for them. The net primary education enrollment variable, which is positively related to the number of projects, suggests that less needy areas within countries tend to receive more aid projects. This result tends to confirm the overall observation that aid projects are not targeted towards poorest areas. Instead of targeting need, these donors may be targeting areas that have a higher baseline level of development in order to take

advantage of higher marginal returns on investment than they might get in return for investing in the poorest areas. If relatively more affluent areas have a greater ability to absorb aid than poorer areas, then donors may target the former even if the absolute level of need is greater in the latter areas.

## Conclusion

Over the past decade, declarations and statements from Rome, Paris, Accra, and Busan have called for, among other things, greater attention to effective aid delivery. Until now, most studies of aid targeting have been confined to cross-national tests or treatments of aid targeting within single countries, which do not adequately capture the level at which donors spatially target specific foreign aid projects or how donor targeting can vary sub-nationally across countries. The emergence of new geocoded data on donor activities by two multilateral organizations, the WB and AfDB, provides us with a unique opportunity to examine the existence and quality of aid targeting subnationally, and consider the effects of donor coordination on it. We have outlined how the combination of clustering and concentration of need provide a theoretical framework for evaluating aid targeting, and have found that the quality of targeting among the same two donors can vary substantially from one country to the next.

In Mozambique and Tanzania, we found low levels of geographic clustering in countries with geographically diffuse need, combined with relatively high levels of donor co-financing. Donors appeared to cover a larger proportion of the country while still communicating and coordinating their efforts, though in the case of Tanzania there appeared to be some clustering of aid in less needy areas. In DRC, we found moderate levels of geographic clustering in a country with relatively concentrated need. Only limited co-financing occurred between the WB and AfDB,

perhaps explaining the effective aid targeting. However, in Kenya, we found that both the World Bank and AfDB concentrated their activities in the same, less needy parts of the country and in Rwanda and Ethiopia we found both donors concentrating in the same areas despite widespread need throughout the country.

While the main goal of this paper is to determine whether these donors effectively target their placement of aid activities in areas of need, we have also suggested one explanation for why this may or may not be the case: reciprocal co-financing of each other's projects. Co-financing may improve overall portfolio coordination – rather than only that of the cooperative projects – by increasing communication and willingness to cooperate between the donor country offices. While evidence from the DRC provides some support for the co-financing argument, we need a wider cross-section of cases to establish this claim more definitively.

To help explain the variation in aid targeting across the six countries, we presented an exploratory regression analysis. We confirmed the null relationship between poverty and the number of aid projects per region, but found that logged regional population, access to improved water facilities, access to improved sanitation facilities, and net primary enrollment rates have significant relationships with the number of aid projects. While decreased access to water and sanitation is associated with higher levels of aid, suggesting that donors are targeting on some measures of need, higher education levels are also associated with higher aid, suggesting that donors are not targeting on need. These results suggest that donors do not use poverty as the sole criterion in deciding where to implement aid projects. Instead, what these donors may be doing is placing aid projects in areas that have a higher marginal return on the aid project, by building off areas that have a higher level of development. If areas with a relatively higher level of affluence may have a greater ability to absorb

development aid than the areas at a lower level of development, then donors may choose to target those areas rather than the neediest ones.

Of course, there are a host of other country-level variables, including levels of corruption, presence or history of conflict – such as in the Kivu region of Eastern DRC – or bureaucratic quality that undoubtedly also contribute to the quality of aid targeting of the WB and AfDB. Moreover, we considered mainly levels of poverty as a need area around these donors target aid, along with other indicators of need used in the regression analysis. Future work should consider a larger portfolio of donor goals, including improved nutrition, child mortality, and disease eradication, for examples. Finally, future work should also examine the quality of aid targeting by bilateral donors. Further data collection needs to be completed to make such an analysis possible, but it represents the next step in assessing the quality of aid targeting and possible explanations for it.

## Disclosure statement

The authors are not aware of any financial interest or benefit that may arise from the direct applications of this research.

## References


African Development Bank. (2004). Bank Group Policy on Poverty Reduction. Available from: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/10000028-EN-BANK-GROUP-POLICY-ON-POVERTY-REDUCTION.PDF.> Accessed on October 27th, 2014 at 11:34am.

African Development Bank (2010). Africa Infrastructure Country Diagnostic. Available from: <www.infrastructureafrica.org> Accessed November 2010.

African Development Bank (2010). Project Database. Available from: <www.infrastructureafrica.org> Accessed November 2010.

Alesina, A., & Dollar, D. (2000.) Who gives foreign aid to whom and why? *Journal of Economic Growth,* 5(1), 33-63.

Allison, P. D. and Waterman, R. P. (2002). "Fixed-effects negative binomial regression models." *Sociological Methodology*, 32, 247-265.

Anselin, L. (1995). Local Indicators of Spatial Association – LISA. *Geographical Analysis,* 27(2), 93-115.

Balogh, T. (1967). Multilateral versus Bilateral Aid. *Oxford Economic Papers,* 19(3), 332-344.

Barrett, C., & Clay, D. (2001). How accurate is food-for-work self-targeting in the presence of imperfect factor markets? Evidence from Ethiopia. *Journal of Development Studies*, 39(5), 152-180.

Berthelemy, J.C., & Tichit, A. (2004). Bilateral donors' aid allocation decisions – A three-dimensional panel analysis. *International Review of Economics and Finance*, 13(3), 253-274.

Bigsten, A. (2006). Donor Coordination and the Uses of Aid. *Working Papers in Economics*. Number 196.

Braithwaite, A., & Li, Q. (2007). Transnational terrorism hot spots: Identification and impact

evaluation. *Conflict Management and Peace Science,* 24, 281-296.

Buse, K. (1999). Keeping a tight grip on the reins: Donor control over aid coordination and management in Bangladesh. *Health Policy Plan,* 14(3), 219-228.

Canavire, G., Nunnenkamp, P., Thiele, R., & Triveno, L. (2005). Assessing the Allocation of Aid: Developmental Concerns and the Self-Interest of Donors. Kiel Working Paper No. 1253.

Claessens, S., Cassimon, D., & Van Campenhout, B. (2009). Evidence on changes in aid allocation criteria. *The World Bank Economic Review*, *23*(2), 185-208.

Collier, P., & Dollar, D. (2002). Aid allocation and poverty reduction. *European Economic Review,* 46(8), 1475-1500.

Columbia University, (2010). Gridded Population of the World [Dataset]. *Socioeconomic Data and Applications Center.* Available from: http://sedac.ciesin.columbia.edu/gpw/global.jsp Accessed November 2010.

Demographic and Health Surveys, (2010). MeasureDHS. Available from: < www.measuredhs.com> Accessed November 2010.

de Renzio, P., & Mulley, S. (2006). Donor Coordination and Good Governance: Donor-Led and Recipient-Led Approaches. *Global economic governance program, Managing aid dependency project, Department of Politics and International Relations, University College Oxford.*

Easterly, W. (2007). Are aid agencies improving? *Economic Policy*, 22(52), 633-678.

Easterly, W. & Pfutze, T. (2008). Best Practice for Foreign Aid: Who Knows Where the Money Goes? *Journal of Economic Perspectives,* 22(2), 29-52.

Findley, M., Powell, J., Strandow, D., & Tanner, J. (2011). The localized geography of

foreign aid: A new dataset and application to violent armed conflict. *World Development 39(11): 1995-2009*.

Getis, A. (2007). Reflections on spatial autocorrelation. *Regional Science and Urban Economics,* 37, 491 -496.

Getis, A., & Ord, K. (1992). The analysis of spatial association by use of distance statistics. *Geographical Analysis,* 24, 189-206.

Halonen-Akatwijuka, M. (2007). Coordination failure in foreign aid. *The B.E. Journal of Economic Analysis and Policy*, 7(1) (Topics), Article 43.

Harmonising Donor Practices for Effective Aid Delivery. (2003). DAC Guidelines and References Series. Paris, France.

HarvestChoice. (2010). Poverty and Hunger. Available from: <www.harvestchoice.org/households/povertyhunger.> Accessed November 2010.

Jayne, T., Strauss, J., Yamano, T., & Molla, D. (2002). Targeting of food aid in rural Ethiopia: Chronic need or inertia? *Journal of Development Economics*, 68(2), 247-288.

Kilby, C. (2006). Donor influence in multilateral development banks: The case of the Asian Development Bank. *The Review of International Organizations*, *1*(2), 173-195.

Knack, S., & Rahman, A. (2007). Donor fragmentation and bureaucratic quality in aid recipients. *Journal of Development Economics*, 83(1), 176-197.

Lumsdaine, D. H. (1993). *Moral Vision in International Politics: The Foreign Aid Regime 1949-1989*. Princeton, NJ: Princeton University Press.

Maizels, A., & Nissanke, M.K. (1984). Motivations for aid to developing countries. *World Development,* 12(9), 879-900.

Martens, B., Mummert, U., Murrell, P., & Seabright, P. (2002). *The Institutional Economics of*

*Foreign Aid*. Cambridge, MA: Cambridge University Press.

Neumayer, E. (2003). The determinants of aid allocation by regional multilateral development banks and United Nations agencies. *International Studies Quarterly*, *47*(1), 101-122.

Nunnenkamp, P., & Thiele, R. (2006). Targeting aid to the needy and deserving: Nothing but promises? *The World Economy*, 29(9), 1177-1201.

Öhler, Hannes. 2013. *Do Donors Coordinate within Recipient Countries?* University of Heidelberg Department of Economics Discussion Paper Series, No. 539.

OECD. (2005). Paris Declaration on Aid Effectiveness. Available from: <http://www.oecd.org/dataoecd/11/41/34428351.pdf>.

Paris Declaration on Aid Effectiveness and the Accra Agenda for Action. (2005/2008). Available from: <http://www.oecd.org/dataoecd/30/63/43911948.pdf.>. Accessed November 2010.

Platteau, J. (2004). Monitoring elite capture in community-driven development. *Development and Change,* 35(2), 223-246.

Rahman, A. & Sawada, Y. (2012). Can donor coordination solve the aid proliferation problem? *Economics Letters,* 116(3), 609-612.

Rice, X., & Siddique, H. (2007). Death toll mounts over Kenyan president's re-election. *The Guardian,* 31. Available from: <http://www.guardian.co.uk/world/2007/dec/31/kenya.haroonsiddique>.

Smith, T., Busby, J., & Agnihotri, A. (2013). *Sub-national African Education and Infrastructure Access Data.* Available from: <https://www.strausscenter.org/images/Subnational_African_Data_Codebook_August_2013.pdf>. Accessed August 2013.

Strandow, D., Findley, M., Nielson, D., & Powell, J. (2011). *The UCDP and AidData*

*Codebook on Geo-referencing Aid. Version 1.1.* Uppsala Conflict Data Program, Paper No. 4. Available from:< http://www.pcr.uu.se/research/ucdp/publications/ucdp_papers/>.

Thiele, R., Nunnenkamp, P., & Dreher, A. (2007). Do donors target aid in line with the Millennium Development Goals? A sector perspective of aid allocation. *Review of World Economics,* 143(4), 596-630.

Tschirley, D., Donovan, C., & Webber, M.T. (1996). Food aid and food markets: Lessons from Mozambique. *Food Policy,* 21(2), 189-209.

USAID. (2004). Donor Coordination: Strategies and Perspectives. Available from: <http://pdf.usaid.gov/pdf_docs/PNACW251.pdf>. Last accessed 27 May, 2013.

UCDP Database. *Mozambique.* Available from: <http://www.ucdp.uu.se/gpdatabase/gpcountry.php?id=111&regionSelect=2-Southern_Africa>. Last accessed 15 October 2010.

White, H., & Morrissey, O. (1997). Conditionality when donor and recipient preferences vary. *Journal of International Development*, 9(4), 497-505.

Winters, M. S. (2010). Choosing to target: What types of countries get different types of World Bank projects. *World Politics*, *62*(03), 422-458.

Woods, N. (2005). The shifting politics of foreign aid. *International Affairs*, 81(2), 393-409.

World Bank. (2010). *World Development Indicators 2010*. Washington, D.C.: World Bank.