ECONOMIC POLICY RESEARCH CENTRE

Speed FOR UNIVERSAL HEALTH COVERAGE IN UGANDA

Towards Sustainable Development

POLICY BRIEF

Issue No. 80 March 2017

Tonny Odokonyero and Robert Marty

Has Foreign Aid Improved Health Outcomes in Uganda? Evidence from Panel Microdata

Executive Summary

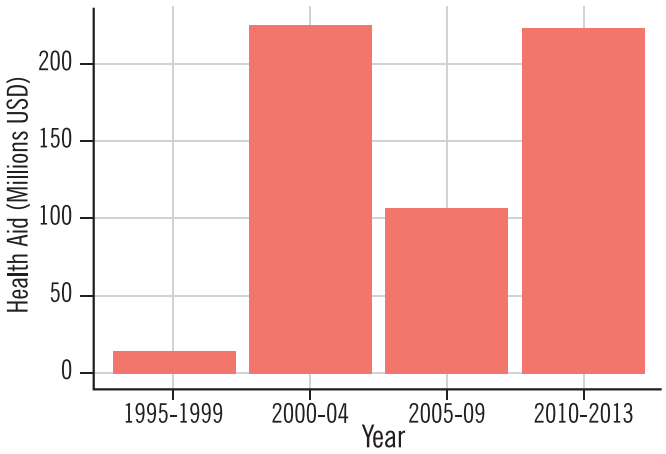
The health sector has attracted significant foreign aid; however, evidence on the effectiveness of this support is mixed. We combine household panel data with geographically referenced foreign aid data and use a quasi-experimental approach to investigate the contribution of aid on key health outcomes in Uganda. We find that overall, health aid achieved a significant impact on reducing both disease severity and burden—with the largest impact on disease burden. In addition, we observe aid is more effective if resources are channelled to locations and facilities that are closer to communities in need, given the ease of access to health services. From a policy perspective, aid ought to be channelled as close to intended beneficiaries as possible, thus advancing the Universal Health Coverage strategy of "close to client" health system.

Introduction

Health is a key component of human capital that strongly influences labour productivity and economic growth[1]. Since the start of MDG implementation in 2000, over US$200 billion in external financing has been invested to improve health outcomes in low-income countries—with US$35.9 billion invested in 2014 alone[2]. Despite significant funding, empirical evidence on the extent to which aid has contributed to improvements in health outcomes remains inconclusive[3]. A number of cross-country level analyses fail to illustrate whether aid has a notable impact on improving key health indicators. This suggests that donor dollars may have never reached the intended beneficiaries, corruption siphoned off aid flows for personal gain, aid has been crowded out by government expenditures, or projects were poorly designed[4]. However, other national-level empirical analyses find strong impacts of aid on improving key health outcomes, particularly from 2000 to 2010 (i.e., after the implementation of the MDGs)[5].

Similar to the cross-national analyses, there exists little conclusive empirical evidence on health aid impacts in Uganda. Despite considerable external support to the health sector (see figure 1 for health aid commitments since 1995),

Figure 1. Health Aid Commitments



Data from AidData (1995 – 2013)

evidence on the impact of aid on health outcomes in Uganda remains anecdotal. Uganda has registered some progress on health related MDGs; however, health indicators are still poor in comparison to the targeted global health standards. In particular, indicators on maternal and child health, malaria, HIV/AIDs, and nutrition remain poor. For example, Uganda has one of the highest maternal mortality ratios in Sub-Saharan

Africa[6] at 438 deaths per 100,000 live births, and substantial disease burdens[7]. Due to the need to make significant future progress and the fact that aid is an integral part of healthcare financing, it is important to examine the contribution of aid to progress that Uganda has already experienced.

This brief is an excerpt from a study [i] we undertook to analyse the effectiveness of health aid at a sub-national level in Uganda using nationally representative household survey data combined with geographically referenced foreign aid data. Specifically, we examined the extent that aid improved health infrastructure, whereby better health infrastructure should translate into improved recovery times from illness. Taking advantage of our ability to identify areas that did and did not receive aid, we employ a Difference-in-Differences approach with panel data fixed-effects regressions to gauge the causal impact of aid. Our analysis aims to provide further insight on sub-national level aid impacts, drawing a distinction with preceding analyses that rely on cross-country level data to evaluate health aid.

Data

Household data are from the socio-economic modules of the 2005/06 Uganda National Household Survey (UNHS) and the 2011/12 Uganda National Panel Survey (UNPS). We create a balanced panel of 10,354 individuals who were interviewed in both 2005/06 and 2011/12 surveys. The surveys contain spatial locations which allows for the data to be matched with other geographically referenced data.

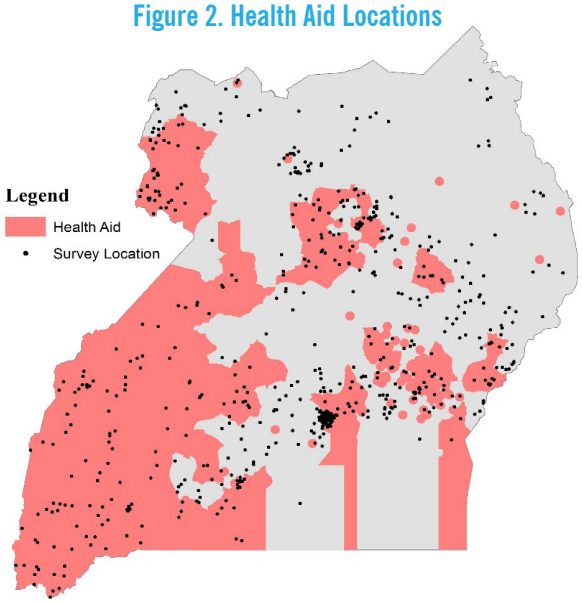
The aid dataset includes aid projects recorded in Uganda's Aid Management Platform. Overall, it includes 74 health aid projects spread across 545 locations, representing over US$590 million in health aid from 19 donors. We use aid projects allocated between the two survey years — specifically, aid projects allocated from 2006 to 2010. Examples of projects include constructing and rehabilitating hospitals, equipping health centres with additional medical supplies, and general donor support to the health sector. Table 1 shows aid commitments by donors, with the United States, the World Bank, and the European Union allocating the most aid. Figure 2 illustrates where aid was allocated within Uganda.

Table 1. Aid Commitments by Donor

Donor	Commitments (US $)
Austria	673,711
China	2,355,916
European Union	3,943,676
World Bank	4,538,977
Japan	786,515
Norway	N/A
Spain	N/A
United States of America	114,270,388
Total	**126,569,183**

Note: Data from AidData Aid Project Database. Values are 2011 US Dollars. Projects are only those considered in the analysis. N/A refers to not available; projects were listed for Norway and Spain, but with no aid commitment amounts.

Figure 2. Health Aid Locations



For projects allocated to entire districts, we code all individuals within that district as receiving aid. For projects allocated to a specific location, we code all individuals within a 3, 5, or 7 km radius from the project as receiving aid. Our base aid radius of 5 km is in line with Uganda's Health Sector Development Plan target of 5 km walking distance as a measure of accessibility to health facilities. Our data should be viewed as delineating individuals who resided in areas that received aid, and such individuals form the treatment group in our analysis. We hypothesize that individuals in areas that received aid, on average, should show improved health outcomes.

Measuring health outcome

Two health outcome metrics are used to gauge the extent that aid improved recovery times from illness (thus indicating improvements in health infrastructure) — disease severity and disease burden. Severity is indicated by the number of days that an individual reported suffering due to illness in the

i http://aiddata.org/sites/default/files/wps18_sub-national_perspectives_on_aid_effectiveness.pdf

preceding 30 days prior to being surveyed, whereas disease burden is proxied by the number of productive days lost owing to illness, where "lost" refers to number of days an individual reported not working due to illness.

To estimate the causal impact of aid on disease severity and burden, we employ a Difference-in-Difference analytical framework while controlling for factors that could also influence health outcomes. Specifically, we examine whether individuals in areas that received aid experienced greater reductions in disease severity and burden from 2005 to 2011 compared to individuals that did not receive aid. Our analysis was conducted based on two different samples from the household surveys: (1) the full sample, including all individuals in both surveys, and (2) the sub-sample of only individuals who reported falling sick in both 2005/06 and 2011/12. We analyse sub and full samples separately to allow for the disentangling of whether aid effects are powerful enough to be picked up in the entire population, in order to deal with any potential dilution effect.

Details of the methodology can be found in working paper #18 – AidData (December, 2015). [ii]

Results

Trends in Health and Socio-Economic Conditions

Table 2 shows that between 2005 and 2011, health and other socio-economic conditions improved. Disease prevalence declined by 11 percentage points, and disease burden and disease severity declined by 0.35 and 0.91 days (or 20.5 and 24.7 percent), respectively. The prevalence of mosquito nets nearly tripled, increasing from 16% of the population sleeping under a mosquito net in 2005 to 45% in 2011. Socio-economic indicators improved, too. The households where every member had at least one pair of shoes increased by nearly 10 percentage points, and people lived about 0.5 kilometres closer to a water source.

Health Aid Impacts

In the sub-sample of individuals reporting falling sick, aid is associated with reducing disease burden by 23 percent when using the 3km aid radius (see figure 3A); however, aid is not significantly associated with reducing disease burden when using the 5 and 7km aid radii. Across all aid radii, aid is not associated with reducing disease severity.

In the full sample, aid is associated with reducing disease burden and severity by about 5% and 3% respectively when using the 3km and 5km aid radii (see figure 3B). When using the 7km aid radii, aid is marginally associated with reducing disease burden by 3% but is not associated with reducing disease severity.

Table 2. Health and Socio-Economic Statistics

	2005	2011	p-value
Health			
Disease Prevalence	0.380	0.272	0.000
Disease Burden	1.742	1.385	0.004
Disease Severity	3.746	2.833	0.000
Use Mosquito Net	0.160	0.452	0.000
Socio-Economic			
Urban	0.122	0.178	0.001
Dist. To Water (km)	1.059	0.499	0.003
Number Rooms	4.756	3.191	0.000
All Household Members Own Two Pairs of Clothes	0.854	0.871	0.250
All Household Members Own Shoes	0.428	0.525	0.000
Own Mobile Phone	0.162	0.638	0.000

Source: Author's computation from UNHS (2005/6), UNPS (2011/12). P-values are from t-tests testing whether there is a significant difference in the variable between 2005 and 2011.

Across all results, aid has a stronger impact on reducing disease burden than disease severity. We propose two possible explanations for this. First, people are more likely to seek medical treatment when a disease proves especially harmful. With disease severity, a person indicating that they were ill for a certain number of days may simply indicate having a minor illness—one that proves inconvenient but may not require seeking medical treatment. With disease burden—when the illness is bad enough to prevent one from working—a person may be more likely to seek medical treatment. If aid effectively bolsters health infrastructure, it will primarily benefit those who seek medical treatment.

ii http://aiddata.org/sites/default/files/wps18_sub-national_perspectives_on_aid_effectiveness.pdf

Recent Policy Briefs

"Understanding Farmers' Agriculture Extension Seeking Behaviour in Uganda"
No. 79 March 2017
Madina Guloba, Mildred Barungi and Annet Adong

"How Farming Practices Should Shape Single Spine Agriculture Extension Service Provision in Uganda"
No. 78 February 2017
Madina Guloba, Annet Adong, and Mildred Barungi

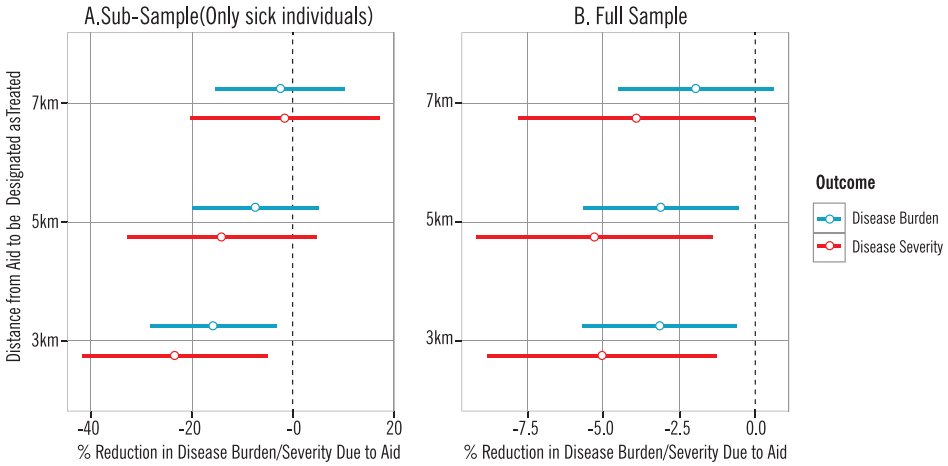
"How should Uganda finance infrastructure development?"
No. 77 February 2017
Joseph Mawejje and Ezra Munyambonera

About the Author

Tonny Odokonyero is a Research Analyst at the Economic Policy Research Centre, Kampala, Uganda.

Robert Marty College of William & Mary, Williamsburg, VA

Figure 3. Health Aid Impact



Lines represent 95% confidence intervals. Results are from difference-in-difference models with fixed effects and clustered standard errors.

Second, disease burden is a less subjective indicator of the magnitude of disease, and thus may better capture aid impacts. The number of days one did not work because they were ill is a distinct number. However, the number of days one suffers is more subjective. For example, an individual may consider "suffering" only when the illness reaches a certain magnitude of inconvenience, while another may view "suffering" as feeling mildly sick. Consequently, disease burden may show a stronger relationship with aid because it is a more consistent measure across individuals.

Conclusion and Way Forward

Aid impacts, particularly on reducing disease burden, are larger when we restrict those in areas who potentially received aid to be closer to aid projects. Consequently, aid appears to work more effectively if channelled to locations closer to the intended beneficiaries. The results highlight the importance of ease in accessibility of the health services provided through aid projects. Our findings suggest that health aid can reduce disease burden and severity more effectively if channelled in such a way that it is made to reach those who are in need in local communities (grass roots). Moreover, channelling aid to the lowest level possible offers an additional advantage of driving the Universal Health Coverage strategy of promoting primary healthcare through the "close to client" health system. Indeed, those clients who are closer to the health facilities are the biggest beneficiaries of health aid.

Endnotes

1 Gallup and Sachs, 2001; Wagner, Barofsky & Sood, 2015
2 DielemanJ; Murray, C; Haakenstad, A; Graves, C; Johnson, E; Templin, T; Birger, M; Singh, L; Leach-Kemon, K. (2014). *Financing Global Health 2014: Shifts in Funding as the MDG Era Closes.* Institute for Health Evaluation and Metrics.
3 Quibria, M.G. (2010). *Aid effectiveness in Bangladesh.* Morgan State University. And Rajan, R. (2005). Aid and growth: The policy challenge. *Finance and development , 42* (4).
4 Williamson, C.R. (2008). Foreign aid and human development: The impact of foreign aid to the health sector. *Southern Economic Journal , 75* (1).; Wilson, S.E. (2011). Chasing Success: Health Sector Aid and Mortality. *World Development , 39* (11), 2032-2043.
5 Bendavid, E and Bhattacharya, J. (2014). The relationship of health aid to population health improvements. *JAMA Internal Med , 174* (6), 881-887.
6 Ssengooba, F; Neema, S; Mbonye, A; Sentumbwe, O; Onama, V. (2003). *Maternal Health Review - Uganda, Health Systems Development Progamme. 2003 HSD/WP/04/03.* Makerere University Institute of Public Health.
7 Uganda Bureau of Statistics and ICF International Inc. (2012). *Uganda Demographic and Health Survey 2011.* UBOS and Calverton, Maryland: ICF International Inc, Kampala, Uganda.

The Economic Policy Research Centre (EPRC) is an autonomous not-for-profit organization established in 1993 with a mission to foster sustainable growth and development in Uganda through advancement of research –based knowledge and policy analysis.

Address:
Economic Policy Research Centre
51, Pool Road, Makerere University Campus,
P. O. Box 7841 Kampala, Uganda
Tel: +256414541023/4 Fax: +256414541022
Email: eprc@eprcug.org, Website: www. eprc.or.ug

Learn more at:
www.eprcug.org TWITTER:@EPRC_official www.facebook.com/EPRCUganda eprcug.org/blog