

Cost-Effectiveness of the Development Assistance for Health in Sub-Saharan Africa for HIV, Malaria and Tuberculosis (1995-2018)

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Introduction

Development Assistance for Health (DAH), comprises the fundamental tool of international aid offered mainly by developed economies and in the last two decades employing strict mechanisms that ensure transparency and evaluation (Borrmann, 1999). DAH creates a favourable environment, especially in the cases not only of communicable diseases and epidemics but also pandemic crises (Walt et al., 1999). It should be noted that DAH funding reflects 13.17% of total funding of health in Sub Saharan countries. Communicable diseases are a top priority of DAH, as a large percentage of the funding is directed towards projects that focus on treatment of such diseases. More specifically, the flow of funds that are aimed at the treatment of HIV comprise 33.3% of the total, while the percentages of malaria and tuberculosis are 17,1% and 13,5% respectively (IHME, 2020).

Methods

Data were drawn from the Institute for Health Metrics and Evaluation’s databases (Global Burden of Disease and DAH) and from the World Bank (World Development Indicators) for the period 1995-2018. Simple linear regression analysis was used to estimate the effect of DAH on DALYs averted and Deaths averted in the three diseases, while the Sub-Saharan countries were classified in the Human Development Index (HDI) categories. To perform the economic evaluation of DAH on DALYs averted and Deaths averted in order to prioritize funding by country and by disease, Generalized Cost - Effectiveness Analysis was performed, based on the WHO’s GDP per capita thresholds.

Results

The positive impact of DAH on HIV treatment seems to be mainly reflected in the case of countries belonging to the middle HDI category, while the channeling of DAH for Malaria and TB treatment is estimated to be statistically significant for countries in the low HDI category.

Group of Countries	Low HDI	Middle HDI	High HDI
Per Disease	DALYs beta	DALYs beta	DALYs beta
1. HIV/AIDS			
Total DAH	0.228*	0.38***	-0.76
Constant	62920.6	-257,890	580,017
2. Malaria			
Total DAH	1.01***	0.26	1.07
Constant	-155,444	-67,537.2	-5,343.8
3. Tuberculosis			
Total DAH	2.82***	-0.56	0.08
Constant	-144,334.3	54,288	6,426.1

Figure 1. Correlation between DAH and Averted DALYs per HDI category and per disease

Malaria absorbed fewer funds than the average of the total aid channeled to the 3 diseases, and achieved results of averted DALYs above the average of the 3 diseases. Tuberculosis absorbed resources lower than the average of the total financing for the 3 diseases and achieved outcomes with averted DALYs lower than the total average of the 3 diseases. HIV/AIDS absorbed funds higher than the average of the total financing for the 3 diseases, and achieved outcomes with averted DALYs above the total average of all 3 diseases.

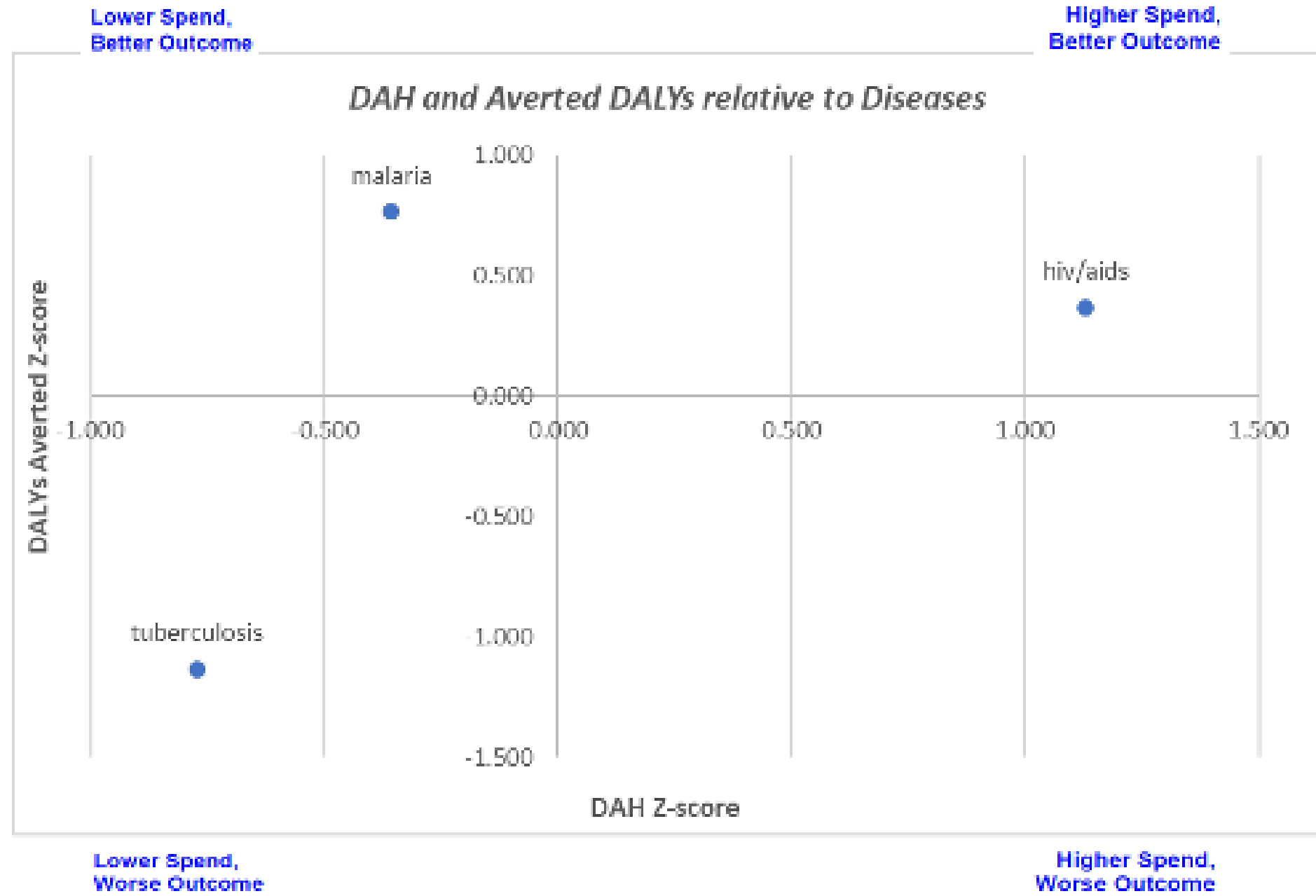


Figure 2. Z-scores for DAH/DALYs averted per disease

Most relative efficiency is observed in the countries placed in the top left quadrant (Ivory Coast, Burundi, Burkina Faso, the Congo and other countries) which absorbed funds lower than the average of the total funding of the reference countries, and achieved results with DALYs averted, more than the total average of the reference countries. These are followed by the countries in the lower left quadrant which absorbed funds lower than the average total funding, and achieved outcomes with DALYs averted lower than the average along with the countries placed in the top right quadrant, which absorbed funds more than the average of the total funding and achieved outcomes with DALYs averted more than the total average of all reference countries. Finally, the least attractive choice refers to the countries placed in the lower right quadrant which absorbed finances more than the average total funding and achieved outcomes with DALYs averted, fewer than the average.

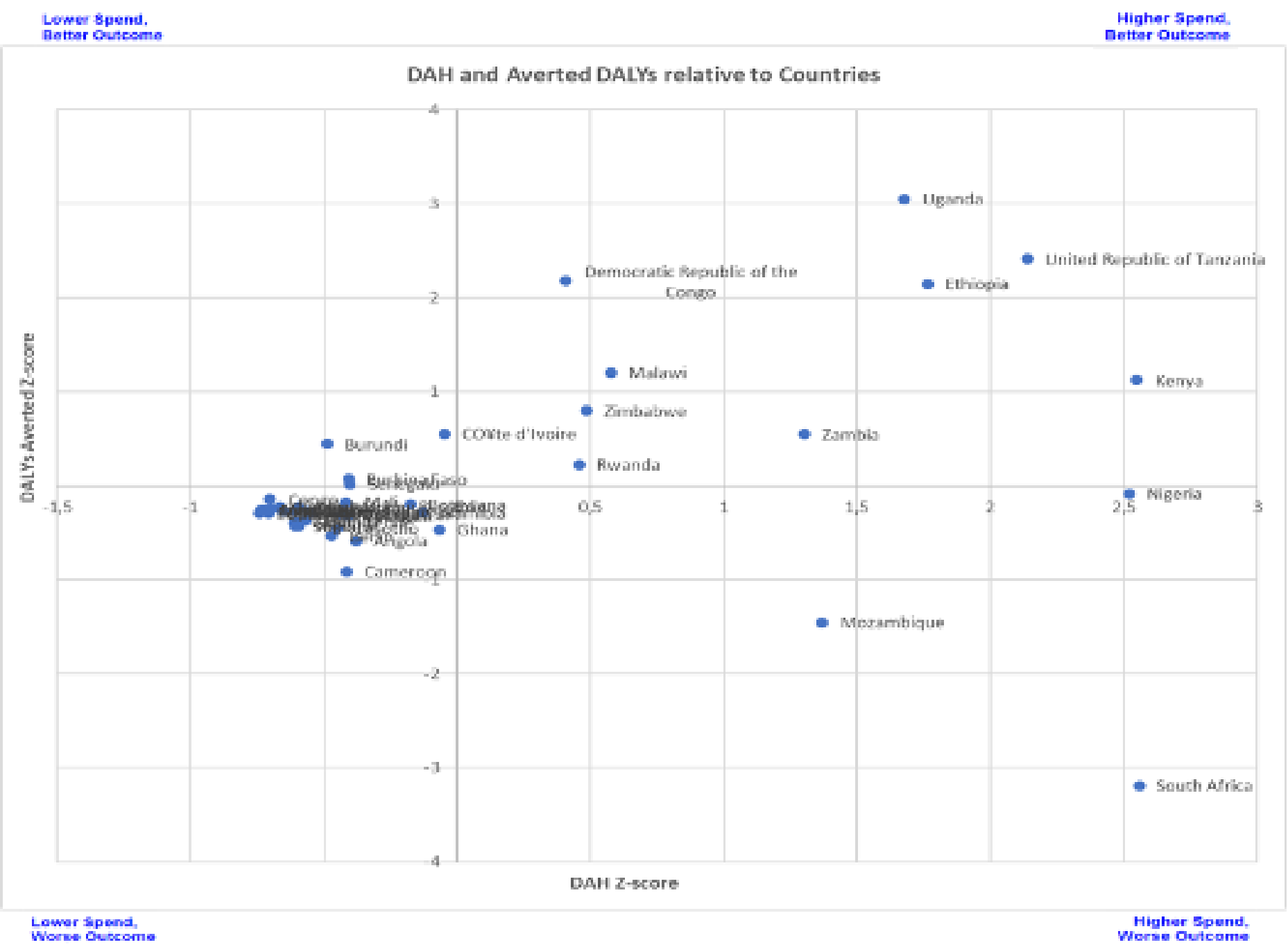


Figure 3. Z-scores for DAH/DALYs averted per country

DAH was found to be very cost-effective in 13 countries, cost-effective in 9 countries and non-cost-effective in 2 countries, while in 21 countries the DAH was found to be dominated.



Figure 4. Cost-Effectiveness results for the countries of the study

Conclusions

The Sub-Saharan African countries vary considerably in terms of their Health Systems infrastructures and organization, and are still remarkably undersupported from their own national resources, resulting in low efficiency of the funds invested. This requires the development of a cost-effective allocation and priority-setting policy to orient funds towards specific countries and diseases in order to achieve the expected positive results in the near future. In addition to targeted financing, it is imperative to support the health systems in total through a more holistic approach, which will strengthen the health systems, thus realizing the final goal for global health coverage. This different perspective could ultimately strengthen targeted interventions since health systems could support them more efficiently.

References

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Acknowledgments

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