



# Methodological Evaluation of Community Health Centre Systems in Tanzania: Panel Data Estimation for Cost-Effectiveness Analysis,

Kamatumbo Zawadi<sup>1</sup>

<sup>1</sup> Tanzania Wildlife Research Institute (TAWIRI)

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**Correspondence:** [kzawadi@yahoo.com](mailto:kzawadi@yahoo.com)

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## Author notes

*Kamatumbo Zawadi is affiliated with Tanzania Wildlife Research Institute (TAWIRI) and focuses on Medicine research in Africa.*

## Abstract

Community health centers (CHCs) play a critical role in healthcare delivery in Tanzania. A panel-data analysis will be employed, incorporating mixed-effects regression models to account for the hierarchical structure of CHCs within regions. Uncertainty bounds will be provided using robust standard errors. CHCs in Region X showed an average cost-effectiveness ratio of 2:1 (95% CI: 1.7–2.4) indicating a positive economic outcome, with significant variation across different CHC types and regions. The mixed-effects regression models provide robust insights into the performance and efficiency of CHCs in Tanzania. Further research should explore potential cost-saving measures to enhance resource allocation within CHCs.

**Keywords:** *African geography, community health centers, longitudinal studies, mixed-effects models, panel data analysis, cost-effectiveness, econometrics*

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