



Methodological Evaluation of District Hospitals Systems in Tanzania Using Panel Data for Efficiency Gains Measurement

Kibwezi Kijana^{1,2}, Nelson Kagawa¹, Mwihaki Magongo²

¹ Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam

² Ardhi University, Dar es Salaam

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Correspondence: kkijana@aol.com

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Author notes

Kibwezi Kijana is affiliated with Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam and focuses on Medicine research in Africa.

Nelson Kagawa is affiliated with Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam and focuses on Medicine research in Africa.

Mwihaki Magongo is affiliated with Ardhi University, Dar es Salaam and focuses on Medicine research in Africa.

Abstract

District hospitals in Tanzania are crucial for healthcare delivery but face challenges in resource management. The study employs a two-stage least squares (2SLS) regression model to estimate efficiency gains across districts. Uncertainty is addressed using robust standard errors. Panel-data analysis revealed significant variations in hospital efficiency, with some districts showing substantial improvements over the study period. Efficiency gains were particularly notable in districts implementing targeted resource allocation strategies. District hospitals should prioritise resource optimization and quality improvement initiatives to enhance service delivery effectiveness. Panel data analysis, hospital efficiency, district healthcare systems, Tanzania Treatment effect was estimated with $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, panel data, hospital efficiency, econometric methods, resource allocation, two-stage least squares, performance measurement*

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