



Methodological Assessment of District Hospitals Systems in Tanzania: Panel Data Estimation for Efficiency Gains

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Abstract

This study aims to evaluate the efficiency of district hospitals in Tanzania by applying panel data estimation methods. Panel data analysis was employed to estimate hospital performance, leveraging data from multiple years across different districts. The study utilised stochastic frontier analysis (SFA) with robust standard errors to account for within-hospital heterogeneity and external shocks. The panel data revealed significant variation in efficiency levels among hospitals, with some achieving efficiencies of up to 85%, indicating substantial room for improvement in others. Efficiency gains can be realised through targeted interventions focused on resource allocation and process optimization. District health authorities are advised to prioritise investments in human resources training, modernization of infrastructure, and efficient management practices to enhance overall service delivery. 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: Tanzania, District Hospitals, Panel Data, Efficiency Gains, Stochastic Frontier Analysis, Econometrics, Spatial Econometrics

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