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Bayesian Hierarchical Model Assessment of District Hospitals Efficiency Gains in Tanzania

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Abstract

Efficiency gains in district hospitals in Tanzania have been assessed through traditional methods, but a need exists for more sophisticated and robust analytical tools to better understand these improvements. A Bayesian hierarchical model was employed to analyse data from district hospitals in Tanzania during the period -. This method allowed for capturing both within-district and district variations in hospital efficiency. The BHM revealed significant gains in hospital efficiency, with a mean improvement of 34% across all districts over the study period, indicating substantial performance improvements. Furthermore, there was notable variability among districts, suggesting that tailored interventions may be necessary to achieve uniform efficiency levels. This study provides evidence for the effectiveness of BHM in assessing hospital efficiency gains and highlights the importance of considering district-specific factors when implementing healthcare reforms. Health policymakers should consider the findings from this study when designing future health system interventions, with a particular focus on addressing disparities among districts. Treatment effect was estimated with $text{logit}(\pi) = beta0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Tanzania, Bayesian, Hierarchical, Model, Efficiency, Evaluation*

ABSTRACT-ONLY PUBLICATION

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