



Bayesian Hierarchical Model for Measuring Cost-Effectiveness of District Hospitals in Ethiopia from 2002 to 2002

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Abstract

This study aims to evaluate the cost-effectiveness of district hospitals in Ethiopia over a decade. A longitudinal study using a Bayesian hierarchical model with robust standard errors was conducted. The model accounts for varying hospital performance across districts over time. The model demonstrated significant variability in cost-effectiveness measures between hospitals and regions, indicating the need for tailored interventions. Bayesian hierarchical models provide valuable insights into district hospital efficiency, offering a nuanced understanding of resource allocation challenges. District health managers should prioritise investment in high-performing facilities and consider regional disparities in cost-effectiveness measures. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Ethiopia, Hierarchical Modelling, Bayesian Statistics, Cost-Effectiveness Analysis, District Hospitals, Longitudinal Studies, Methodology

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