



Methodological Evaluation of District Hospitals Systems in Ethiopia Using Panel Data for System Reliability Measurement

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Abstract

The study aims to evaluate the operational efficiency of district hospitals in Ethiopia by analysing their systems reliability. A mixed-method approach was employed, combining quantitative panel data with qualitative insights. The Poisson regression model was used to estimate the impact of various factors on system reliability. District hospitals showed a moderate level of system reliability (mean score: 75%), indicating room for improvement in service delivery and patient management. The study highlights the need for targeted interventions to enhance hospital systems' performance, particularly in areas like resource allocation and staff training. Implementing evidence-based policies such as improved staffing levels and upgrading infrastructure could significantly improve system reliability. District hospitals, Ethiopia, System reliability, Panel data analysis, Poisson regression Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Ethiopia, Panel Data, System Reliability, District Hospitals, Methodology, Evaluation, Health Systems

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