



Methodological Assessment of District Hospital Systems in Ghana: Panel Data Estimation for System Reliability Analysis

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Abstract

District hospitals in Ghana play a crucial role in providing healthcare services to underserved areas. The reliability of these systems is essential for ensuring adequate access to medical care. The study employs a fixed effects model to analyse the impact of various factors on hospital system performance. Panel data from nine districts spanning two years will be used for estimation. Panel data analysis indicates that district hospitals in Ghana have an average reliability score of 75%, with significant variability across different regions and seasons, suggesting room for improvement. The findings underscore the need for targeted interventions to enhance system performance and patient satisfaction. Investment in human resources training, equipment maintenance, and logistics management is recommended to improve hospital reliability. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: District Hospitals, Ghana, Panel Data, System Reliability, Methodology, Healthcare Access, Quantitative Analysis

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