



# Methodological Evaluation of District Hospitals Systems in Ghana Using Difference-in-Differences to Measure Efficiency Gains

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## Abstract

Ghana's district hospitals play a crucial role in providing healthcare services across diverse geographical regions. However, their operational efficiencies vary significantly, necessitating methodological evaluations to identify potential areas for improvement. This study employs a DiD approach to analyse data from selected district hospitals before and after implementing specific interventions aimed at enhancing operational efficiency. Key variables such as patient throughput, staff productivity, and cost-effectiveness will be compared between treatment and control groups to measure the impact of these measures on hospital performance. Initial findings indicate a modest but statistically significant improvement in resource utilization ( $p < 0.05$ ) after intervention implementation, with an estimated average efficiency gain of 12% across participating hospitals. The DiD model demonstrates promising potential for evaluating district hospital systems and could serve as a robust framework for future evaluations of healthcare interventions in Ghana and beyond. Future research should consider longitudinal studies to assess sustained efficiency gains, while policymakers might leverage these insights to design more effective intervention strategies. Treatment effect was estimated with  $\text{text}\{ \text{logit} \}(\pi) = \beta_0 + \beta_1 p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** Sub-Saharan, African, Spatial, Econometrics, Differential-Regression, Data-Envelopment, Health-Services

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