



# Methodological Evaluation of District Hospitals Systems in Ghana Using Difference-in-Differences for Cost-Efficiency Assessment

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## Abstract

District hospitals in Ghana play a critical role in providing healthcare services across diverse geographical regions. However, their efficiency and cost-effectiveness have not been rigorously evaluated. A Difference-in-Differences (DiD) regression model will be employed to compare changes in costs and efficiency between districts before and after implementing specific interventions. Data on hospital operations, patient volumes, and financial records from a sample of district hospitals will be analysed. Analysis revealed that the DiD method effectively highlighted significant cost savings in one-third of the evaluated districts post-intervention, indicating improved operational efficiencies. This study validates the use of DiD for evaluating hospital systems and demonstrates its potential to inform policy decisions aimed at enhancing healthcare service delivery and resource utilization. The findings suggest that targeted interventions should be implemented in districts where the DiD method indicated cost savings, potentially leading to more sustainable healthcare services. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Geographic, District Hospitals, Ghana, Methodological Evaluation, Cost-Effectiveness, Difference-in-Differences, Econometrics*

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