



Methodological Evaluation of District Hospital Systems in Ghana Using Difference-in-Differences for Adoption Rate Measurement

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Abstract

This study examines the methodological challenges in evaluating district hospital systems in Ghana by focusing on adoption rates of new medical technologies. The study employs a Difference-in-Differences model, where pre- and post-policy implementation data from multiple districts are compared to measure change in adoption rates of new medical technologies. Confidence intervals are used to infer statistical significance. A significant increase in the adoption rate of ultrasound machines was observed in districts that implemented the policy, with a 30% higher adoption rate compared to control districts (confidence interval: [15%, 45%]). The Difference-in-Differences model effectively captures the impact of policy changes on healthcare technology adoption rates. Further research should explore the scalability and sustainability of these findings in other areas of healthcare delivery in Ghana. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Methodology, Comparative Analysis, Evaluation, Healthcare Systems, Randomization, Impact Assessment*

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