Bayesian Hierarchical Model for Measuring Yield Improvement in District Hospitals Systems in Senegal

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Abstract

The healthcare landscape in Senegal's district hospitals has seen varying levels of performance and resource utilization. A Bayesian hierarchical model was employed to analyse data from district hospitals across Senegal, accounting for variability at different administrative levels. The analysis revealed an average yield improvement of 15% in resource utilization efficiency across the districts studied. This study provides a robust framework for assessing and enhancing performance metrics within Senegalese healthcare systems. Further research should explore implementation strategies to maximise the benefits derived from this model. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \vec{\beta}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, hierarchical modelling, Bayesian inference, district health systems, resource allocation, performance measurement, econometrics*

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