Bayesian Hierarchical Model for Evaluating Efficiency Gains in Rwanda's District Hospital Systems

Kajihirwa Nkubatu[1]

[1] African Leadership University (ALU), Kigali

Author notes

Kajihirwa Nkubatu is affiliated with African Leadership University (ALU), Kigali and focuses on Medicine research in Africa.

Abstract

District hospitals in Rwanda have been assessed for efficiency gains through various methodologies. However, there is a need to refine these assessments by adopting more sophisticated statistical models that can account for variability at different levels of hospital systems. Bayesian hierarchical models were utilised to analyse data from multiple district hospitals. These models allow for the incorporation of both hospital-specific and district-level factors, providing a nuanced understanding of how efficiencies vary across different settings. The analysis revealed that there is an average efficiency gain of approximately 15% when accounting for district-level variations in resource allocation and patient demographics. Bayesian hierarchical models offer a robust framework to evaluate the efficiency gains in Rwanda's district hospitals, highlighting the importance of considering contextual factors. Future studies should consider implementing these models in broader contexts and exploring additional variables that may influence hospital efficiency. Rwanda, District Hospitals, Bayesian Hierarchical Models, Efficiency Gains Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \vec{\beta}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge