Methodological Evaluation of Community Health Centre Systems in Senegal: Panel Data Estimation for Efficiency Gains

Seyni Ndiaye[1,2], Mariama Diop[3,4], Kadiatou Sylla[2,5], Mamady Ba[2]

[1] Department of Pediatrics, Université Alioune Diop de Bambey (UADB)

[2] Institut Sénégalais de Recherches Agricoles (ISRA)

[3] Université Alioune Diop de Bambey (UADB)

[4] Department of Surgery, African Institute for Mathematical Sciences (AIMS) Senegal

[5] African Institute for Mathematical Sciences (AIMS) Senegal

Author notes

Seyni Ndiaye is affiliated with Department of Pediatrics, Université Alioune Diop de Bambey (UADB) and focuses on Medicine research in Africa.

Mariama Diop is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Medicine research in Africa.

Kadiatou Sylla is affiliated with African Institute for Mathematical Sciences (AIMS) Senegal and focuses on Medicine research in Africa.

Mamady Ba is affiliated with Institut Sénégalais de Recherches Agricoles (ISRA) and focuses on Medicine research in Africa.

Abstract

Community health centres (CHCs) in Senegal are critical for delivering healthcare services to underserved populations. Despite their importance, there is a need to evaluate and improve their operational efficiency. This research employs econometric methods, specifically the Data Envelopment Analysis (DEA) model, to assess the operational efficiency of the CHCs. The DEA model is applied using cross-sectional data from multiple years to capture changes over time and across different locations within Senegal. The panel-data estimation revealed that some CHCs exhibit significant efficiency gains in service delivery compared to their peers, with a proportion of at least 30% improvement in operational effectiveness observed. These findings suggest that targeted interventions aimed at improving resource allocation and management could enhance the overall performance of Senegalese CHCs, thereby improving healthcare outcomes for local populations. Based on these results, it is recommended that policymakers focus on implementing strategies to increase efficiency in CHC operations, such as training staff and optimising service delivery protocols. Treatment effect was estimated with $text\{logit\}(\pi)=beta\,0+\beta^{\rightarrow}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Senegalese, panel-data, econometrics, efficiency, health-systems, resource-utilization*

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