



Methodological Assessment and Clinical Outcome Evaluation of Municipal Water Systems in Uganda Using Difference-in- Differences Models

James Kasayi¹, Michael Ssenyonjo², Grace Namugyere^{3,4}

¹ Department of Data Science, Makerere University, Kampala

² Gulu University

³ Makerere University, Kampala

⁴ Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

Published: 17 September 2010 | **Received:** 07 July 2010 | **Accepted:** 16 August 2010

Correspondence: jkasayi@gmail.com

DOI: [10.5281/zenodo.18916490](https://doi.org/10.5281/zenodo.18916490)

Author notes

James Kasayi is affiliated with Department of Data Science, Makerere University, Kampala and focuses on Computer Science research in Africa.

Michael Ssenyonjo is affiliated with Gulu University and focuses on Computer Science research in Africa.

Grace Namugyere is affiliated with Makerere University, Kampala and focuses on Computer Science research in Africa.

Abstract

Water scarcity is a significant challenge in Uganda, particularly affecting municipal water systems' effectiveness. Difference-in-Differences (DiD) models were employed to analyse pre- and post-policy interventions on water system performance. A substantial increase in clean water supply was observed, with a 20% rise in access rate among rural populations. The DiD model provided robust evidence of policy impact but acknowledged limitations in data quality. Further studies should focus on long-term sustainability and stakeholder engagement for system improvement. Difference-in-Differences, Municipal Water Systems, Clinical Outcomes, Uganda Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n \text{sumiell}(y_i, f\theta(\xi)) + \lambda \text{Vert}\theta \text{rVert}^2 \}$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, African, SpatialStatistics, QuantitativeResearch, CausalInference, TimeSeriesAnalysis, PublicHealthMetrics*

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