African Retailing Studies

Replicating the Methodological Evaluation of Municipal Water Systems in South Africa Using Difference-in-Differences Models

Siyabonga Mngeni[1]

[1] Rhodes University

Published: 15 May 2012 | **Received:** 01 January 2012 | **Accepted:** 29 April 2012

Correspondence: smngeni@hotmail.com

DOI: 10.5281/zenodo.18975174

Author notes

Siyabonga Mngeni is affiliated with Rhodes University and focuses on Computer Science research in Africa.

Abstract

Recent studies have evaluated municipal water systems in South Africa using difference-in-differences (DiD) models to assess their cost-effectiveness. However, these evaluations often lack replication and detailed methodological scrutiny. The methodology involves re-analysing data from a comprehensive dataset collected over several years. We employ difference-in-differences models to estimate cost-effectiveness metrics, accounting for potential confounding variables with robust standard errors and confidence intervals. Our replication confirms the initial findings but also identifies an unexpected trend where certain municipalities saw reduced water usage despite investment in infrastructure improvements. This study provides a detailed and validated methodological framework for future research on municipal water systems, highlighting specific insights into cost-effectiveness that were not previously evident. Future studies should consider the identified trends and incorporate additional control variables to enhance model accuracy. Policy makers could leverage these results to inform more targeted interventions in South African municipalities. Difference-in-Differences, Municipal Water Systems, Cost-Effectiveness, Robust Standard Errors Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, econometrics, randomized controlled trials, spatial analysis, intervention studies, regression discontinuity, causal 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