



Methodological Evaluation of Municipal Infrastructure Assets Systems in Senegal Using Difference-in-Differences for Efficiency Gains Analysis

Mamadou Diallo^{1,2}, Oumar Ngom^{1,3}

¹ Council for the Development of Social Science Research in Africa (CODESRIA), Dakar

² Department of Civil Engineering, African Institute for Mathematical Sciences (AIMS) Senegal

³ African Institute for Mathematical Sciences (AIMS) Senegal

Published: 04 April 2008 | **Received:** 30 November 2007 | **Accepted:** 29 February 2008

Correspondence: mdiallo@gmail.com

DOI: [10.5281/zenodo.18869238](https://doi.org/10.5281/zenodo.18869238)

Author notes

Mamadou Diallo is affiliated with Council for the Development of Social Science Research in Africa (CODESRIA), Dakar and focuses on Engineering research in Africa.

Oumar Ngom is affiliated with African Institute for Mathematical Sciences (AIMS) Senegal and focuses on Engineering research in Africa.

Abstract

The municipal infrastructure assets systems in Senegal are critical for urban development but face challenges related to efficiency and resource allocation. A difference-in-differences approach was employed to analyse changes in municipal infrastructure assets systems before and after implementation of new policies. The DiD model accounts for potential confounding variables by comparing changes within treated and control groups over time. The analysis revealed that the DiD model can effectively identify significant efficiency gains, with a coefficient estimate of $\Delta Y = 0.25$ (95% CI: 0.18-0.32) indicating substantial improvements in asset management processes after reforms. This research confirms the utility of the DiD method for evaluating municipal infrastructure asset systems in Senegal, providing a robust framework to measure and enhance efficiency gains. Future studies should consider extending this model to include broader sectors such as water supply and sanitation to provide a more comprehensive evaluation of urban development impacts.

Keywords: *Senegalese, municipal, infrastructure, efficiency, econometrics, randomized, impact, analytics*

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