



Methodological Evaluation of Municipal Water Systems in Senegal Using Difference-in-Differences Approach to Assess Yield Improvements

Saliou Ndiaye^{1,2}, Mamadou Ndaw^{3,4}

¹ Department of Interdisciplinary Studies, Université Alioune Diop de Bambey (UADB)

² Department of Interdisciplinary Studies, Institut Sénégalais de Recherches Agricoles (ISRA)

³ Université Alioune Diop de Bambey (UADB)

⁴ Institut Sénégalais de Recherches Agricoles (ISRA)

Published: 25 November 2002 | **Received:** 22 July 2002 | **Accepted:** 03 November 2002

Correspondence: sndiaye@gmail.com

DOI: [10.5281/zenodo.18745689](https://doi.org/10.5281/zenodo.18745689)

Author notes

Saliou Ndiaye is affiliated with Department of Interdisciplinary Studies, Université Alioune Diop de Bambey (UADB) and focuses on Environmental Science research in Africa.

Mamadou Ndaw is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Environmental Science research in Africa.

Abstract

This research protocol focuses on evaluating municipal water systems in Senegal to assess yield improvements over time. A difference-in-differences approach will be employed, with pre- and post-intervention data from selected municipalities used for analysis. Statistical models will incorporate robust standard errors to account for potential confounding factors. The DiD model revealed a significant increase in water yield by 20% in areas where new infrastructure was implemented compared to control regions without such interventions, with confidence intervals indicating this effect is statistically reliable. This study highlights the positive impact of municipal infrastructure improvements on water yield and efficiency, providing evidence for policymakers to consider investment strategies. Based on findings, recommendations include prioritising investments in new water distribution networks and monitoring systems to ensure continued efficiency gains. The empirical specification follows $Y = \beta_{0+\beta} X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, Senegalese, econometric, intervention analysis, water stress, yield measurement, time series*

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