Methodological Evaluation of Regional Monitoring Networks in Senegal Using Difference-in-Differences for Efficiency Assessment

Ibrahima Niang[1]**, Amadou Diop**[2]**, Diallo Sall**[3]

[1] Université Alioune Diop de Bambey (UADB)

[2] Institut Sénégalais de Recherches Agricoles (ISRA)

[3] Université Gaston Berger (UGB), Saint-Louis

Correspondence: iniang@aol.com

Author notes

Ibrahima Niang is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Environmental Science research in Africa.
Amadou Diop is affiliated with Institut Sénégalais de Recherches Agricoles (ISRA) and focuses on Environmental Science research in Africa.
Diallo Sall is affiliated with Université Gaston Berger (UGB), Saint-Louis and focuses on Environmental Science research in Africa.

Abstract

This study evaluates the effectiveness of regional monitoring networks in reducing environmental pollutants in Senegal. Regional monitoring networks in Senegal were monitored longitudinally. A difference-in-differences (DiD) model was employed to evaluate changes in pollutant levels across different regions before and after network implementation, accounting for potential confounding factors such as economic growth and seasonal variations. The DiD analysis revealed a statistically significant reduction in particulate matter concentration by 20% within the monitored areas, indicating effective pollution control measures. The DiD model validated its utility in assessing the impact of regional monitoring networks on environmental quality improvement in Senegal. Policy recommendations include expanding network coverage to additional regions and integrating seasonal data for more comprehensive results. Senegal, Monitoring Networks, Difference-in-Differences, Environmental Quality, Pollution Control The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, Senegalese, monitoring, efficiency, econometric, spatial, intervention, diffusion, impact*

ABSTRACT-ONLY PUBLICATION

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