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Methodological Evaluation of Water Treatment Facilities Adoption in Senegal Using Difference-in-Differences Analysis

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Abstract

Water treatment facilities in Senegal have been deployed to improve access to clean water, but their adoption rates vary across regions. A DiD analysis will be applied to assess the impact of policy interventions on water treatment facility adoption rates, controlling for regional and temporal variations. In one region, an estimated 45% increase in water treatment facilities was observed post-intervention compared to a control group. The DiD model successfully highlighted differences in adoption rates between intervention and control regions. Future studies should consider longitudinal data collection for more nuanced understanding of regional dynamics. Senegal, water treatment facilities, difference-in-differences, adoption rate analysis The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, Senegalese, econometrics, randomized control, stochastic frontier, impact assessment, regression analysis*

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