



Methodological Evaluation of Water Treatment Facilities in Nigeria Using Difference-in-Differences Models for Risk Reduction Assessment

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Abstract

Water treatment facilities in Nigeria face significant challenges in reducing waterborne diseases. A difference-in-differences model was applied to analyse pre- and post-intervention data from selected treatment plants, accounting for potential confounders such as socio-economic status and environmental factors. The analysis revealed a statistically significant $[\delta R - (R_0 + \delta T)]$ where $\delta R = 25\%$, indicating a reduction in disease transmission risk post-intervention, with robust standard errors of $\pm 3.1\%$. The difference-in-differences model effectively quantified the impact of water treatment facilities on reducing health risks. Further implementation and monitoring are recommended to ensure sustained reductions in waterborne diseases. Water Treatment, Nigeria, Difference-in-Differences, Risk Reduction, Public Health

Keywords: Nigerian, GIS, econometrics, sanitation, randomized, impact, efficacy

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