Evaluating Water Treatment Facilities Adoption Rates Through Panel Data Analysis in Nigeria: A Methodological Assessment

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Abstract

Water treatment facilities are crucial for ensuring safe drinking water in Nigeria, yet their adoption rates vary across different regions. A panel data analysis was conducted using survey data collected from multiple years in Nigeria. The study employs a fixed effects model with robust standard errors to account for potential unobserved heterogeneity. The adoption rate of water treatment facilities varied significantly across different regions, ranging from 30% in rural areas to over 65% in urban settings. This study provides a methodological framework that can be used to evaluate the adoption rates of similar infrastructure projects in other countries. Further research should explore factors influencing water treatment facility adoption and consider implementation strategies for higher uptake. Water Treatment Facilities, Adoption Rates, Panel Data Analysis, Nigeria The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Geographic, Sub-Saharan, Panel Analysis, Water Supply, Treatment Systems, Methodological Evaluation, Adoption Rates*

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