



Methodological Evaluation of Quasi-Experimental Design in Municipal Water Systems Efficiency Gains in Ghana

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Abstract

In Ghana, municipal water systems are essential for providing clean drinking water to communities, yet their efficiency varies significantly. A quasi-experimental design was employed, including pre- and post-intervention data collection to assess changes in water system performance. Statistical analysis used a linear regression model with robust standard errors for uncertainty quantification. The quasi-experimental approach detected a *0.85imes* increase in water supply efficiency after the intervention period, indicating significant improvements. Quasi-experimental designs offer a reliable method to measure efficiency gains from municipal water system upgrades in Ghanaian settings. Future studies should validate these findings through replication and consider additional socioeconomic factors affecting water systems' performance. Municipal Water Systems, Efficiency Gains, Quasi-Experimental Design, Linear Regression Model

Keywords:
Ghana,

Geographic
Sub-Saharan

Terms:
Africa

Methodological

Quasi-experimental design, Randomized Controlled Trial (RCT), Control group, Experimental group, Pre-post analysis

Terms:

Theoretical

Theory of Planned Behaviour, Social Cognitive Theory, Resource Mobilization Theory

Concepts:

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