



The Methodological Framework for Adoption Rate Analysis in Tanzanian Municipal Water Systems Using Difference-in-Differences Techniques

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Abstract

This article explores the adoption rate analysis of municipal water systems in Tanzanian municipalities by employing difference-in-differences (DID) techniques. A difference-in-differences (DID) model will be applied, where pre- and post-policy intervention data on water system adoption will be analysed to isolate the causal effect of policy changes on adoption rates. This framework provides a clear path for understanding and improving the adoption of municipal water systems with empirical evidence. Future research should consider expanding the DID model to include more variables such as community engagement and socio-economic factors to enhance accuracy. The empirical specification follows $Y = \beta_{0+\beta} X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Tanzania, GIS, DID, econometrics, spatial analysis, poverty alleviation, sustainability

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