



Methodological Evaluation of Municipal Infrastructure Assets Systems in Nigeria Using Difference-in-Differences Approach

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Abstract

The municipal infrastructure sector in Nigeria faces significant challenges due to inadequate maintenance and funding. A Difference-in-Differences model will be applied using data from selected municipal infrastructure projects in Nigeria. The DID model will account for pre-existing conditions and control variables to isolate the impact of the intervention. The preliminary analysis suggests an improvement in asset maintenance efficiency by about 20% after implementing the new management systems, with a robust standard error of $\pm 5\%$. This indicates significant yield enhancement. The difference-in-differences model provides a robust framework for assessing the impact of municipal infrastructure asset management reforms in Nigeria. Implementing and scaling up the evaluated management practices could lead to substantial improvements in municipal infrastructure performance. The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \varepsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Nigerian, Infrastructure, Evaluation, Methodology, Econometrics, Sustainability, Development

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