



# Methodological Evaluation of Power-Distribution Equipment Systems in Nigeria Using Difference-in-Differences Approach

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## Abstract

In Nigeria, power-distribution equipment systems are critical for reliable energy supply in regions with varying levels of infrastructure development. A DiD model was employed to analyse data from multiple sites before and after the implementation of new equipment, with control sites used to isolate the effect of changes. The analysis revealed significant improvement in power distribution yield by up to 20% in regions where new systems were deployed compared to baseline conditions. The difference-in-differences model successfully identified the impact of upgraded equipment on power distribution efficiency, providing a robust method for evaluating such interventions. Further studies should explore scalability and cost-effectiveness of these findings across different geographical regions in Nigeria. 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, Power-Distribution, Infrastructure, Methodology, Econometrics, DiD, Regression Analysis*

## ABSTRACT-ONLY PUBLICATION

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