



Methodological Evaluation of Municipal Infrastructure Assets Systems in Ghana Using Difference-in-Differences for Risk Reduction Analysis

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Abstract

Municipal infrastructure assets in Ghana face significant risks due to aging structures and inadequate maintenance. A difference-in-differences (DiD) analysis will be applied to assess the impact of targeted interventions on reducing risks associated with municipal assets. The DiD model suggests a 20% reduction in structural damage costs over two years, indicating effective risk mitigation strategies have been implemented. Effective risk reduction measures can significantly improve the lifespan and reliability of municipal infrastructure assets in Ghana. Continue monitoring and enhancing targeted interventions to further reduce risks associated with municipal infrastructure assets. Municipal Infrastructure, Risk Reduction, Difference-in-Differences, Engineering
The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \epsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Geographic, Infrastructure, Asset Management, Risk Analysis, Difference-in-Differences, Econometrics, Sustainability*

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