



Methodological Evaluation of Municipal Infrastructure Assets Systems in Ethiopia Using Panel Data Estimation for Yield Improvement

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Published: 10 October 2021 | **Received:** 13 July 2021 | **Accepted:** 24 August 2021

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DOI: [10.5281/zenodo.18731782](https://doi.org/10.5281/zenodo.18731782)

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Abstract

The management of municipal infrastructure assets in Ethiopia is crucial for urban development and public welfare. Panel data techniques were applied to analyse the municipal infrastructure system's performance over time across different regions of Ethiopia. A significant proportion (45%) of assets showed improvement in their operational effectiveness post-estimation adjustments. The panel-data estimation method successfully identified yield improvements, suggesting its potential for broader application. Further studies should explore the economic impact and scalability of these findings across Ethiopia's municipalities. Panel Data Estimation, Municipal Infrastructure Assets, Yield Improvement, Urban Development 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: Ethiopia, Municipal Infrastructure, Panel Data, Time Series Analysis, Econometrics, Asset Management, Development Economics

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