Methodological Evaluation of Municipal Infrastructure Assets Systems in Ghana: Randomized Field Trial for Cost-Effectiveness Assessment

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Abstract

Ghana's municipal infrastructure assets systems are critical for urban development and service delivery. However, their cost-effectiveness remains a subject of debate due to limited empirical evidence. A randomized controlled trial was conducted across five randomly selected municipalities. Data on maintenance costs, service delivery outcomes, and user satisfaction were collected over one year using standardised surveys and financial records. The analysis revealed that the cost-effectiveness of municipal infrastructure assets varied significantly by municipality, with a median improvement in service delivery efficiency of 15% after implementing optimised asset management strategies. This randomized field trial provides valuable insights into the cost-effectiveness of municipal infrastructure asset management practices in Ghana. The findings suggest that municipalities should prioritise investment in maintenance and upgrade plans to enhance service delivery outcomes and user satisfaction. Municipal Infrastructure, Cost-Effectiveness, Randomized Field Trial, Asset Management, Urban Development The maintenance outcome was modelled as $Y\{\}=beta\,0+beta\,1\,X\{\}+ui+varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords:	*Geographic*	*Terms:*
Ghana		
Methodological		*Terms:*
Randomization		
Evaluation		
Cost-Benefit		*Analysis*
Theoretical		*Concepts:*

Infrastructure *Economics*
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