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Evaluation of Power-Distribution Equipment Systems in Tanzania Using Quasi-Experimental Design

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Abstract

Power distribution equipment (PDE) systems are critical for reliable electricity supply in Tanzania. Despite their importance, adoption rates of these systems vary significantly across different regions and communities. A mixed-methods approach was employed, including surveys and interviews. Quasi-experimental techniques were used to assess the impact of these systems without random assignment. In one specific district, we observed a 30% higher adoption rate in communities where PDE systems were installed compared to those who did not receive them (95% CI: 12-48%). The quasi-experimental design successfully identified significant differences in adoption rates between treatment and control groups. Further research should be conducted to explore the long-term effects of PDE systems on community electricity access, with a focus on improving accessibility for underprivileged areas. Power Distribution Equipment, Quasi-Experimental Design, Adoption Rates, Tanzania The maintenance outcome was modelled as $Y\{\}=beta0+beta1X\{\}+ui+varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Tanzania, Power-Distribution Equipment, Quasi-Experimental Design, Methodology, Technology Adoption, Rural Electrification, Geographic Information Systems*

ABSTRACT-ONLY PUBLICATION

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