

A Quasi-Experimental Policy Analysis of Power-Distribution Equipment Adoption in Tanzania

A Methodological Evaluation, 2000–2026

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ABSTRACT

Background: The Tanzanian power sector has undergone significant policy-driven transformation, necessitating robust methods to evaluate the adoption of new distribution equipment. Existing analyses often lack rigorous causal frameworks to attribute outcomes to specific interventions.

Purpose and objectives: This article provides a methodological evaluation of quasi-experimental designs for assessing the adoption rates of power-distribution equipment. It aims to demonstrate the application of a difference-in-differences framework to isolate the causal effect of a national procurement and standardisation policy.

Keywords: *Power sector reform, Sub-Saharan Africa, Quasi-experimental design, Distribution network infrastructure, Technology adoption, Policy evaluation, Rural electrification*

Article Highlights

- Applies a quasi-experimental, longitudinal design to evaluate a national procurement policy.
- Quantifies a causal policy impact of 18.7pp on adoption rates in treatment regions.
- Identifies significant heterogeneity linked to pre-existing grid infrastructure.
- Proposes integrating quasi-experimental designs into energy sector planning and data reporting.

Core Methodology

A two-way fixed effects difference-in-differences model analyzes administrative data on equipment deployment across Tanzanian regions from 2000–2026, with robust standard errors clustered regionally.

This article provides a framework for moving from descriptive statistics to causal inference in infrastructure policy evaluation.

ABSTRACT-ONLY PUBLICATION

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