



# Methodological Evaluation of Power-Distribution Equipment Systems in Kenya Using Difference-in-Differences Approach for Adoption Rate Measurement

Wambugu Muriuki<sup>1,2</sup>, Salman Kinyanjui<sup>3,4</sup>, Chege Gitonga<sup>2</sup>, Oluoch Cheruti<sup>2</sup>

<sup>1</sup> Kenya Agricultural and Livestock Research Organization (KALRO)

<sup>2</sup> Pwani University

<sup>3</sup> African Population and Health Research Center (APHRC)

<sup>4</sup> Department of Electrical Engineering, Strathmore University

**Published:** 23 April 2001 | **Received:** 04 January 2001 | **Accepted:** 02 April 2001

**Correspondence:** [wmuriuki@aol.com](mailto:wmuriuki@aol.com)

**DOI:** [10.5281/zenodo.18734079](https://doi.org/10.5281/zenodo.18734079)

## Author notes

*Wambugu Muriuki is affiliated with Kenya Agricultural and Livestock Research Organization (KALRO) and focuses on Engineering research in Africa.*

*Salman Kinyanjui is affiliated with African Population and Health Research Center (APHRC) and focuses on Engineering research in Africa.*

*Chege Gitonga is affiliated with Pwani University and focuses on Engineering research in Africa.*

*Oluoch Cheruti is affiliated with Pwani University and focuses on Engineering research in Africa.*

## Abstract

Power distribution equipment systems (PDES) are critical for ensuring reliable electricity supply in Kenya's rural and urban areas. A DiD model will be employed to assess the effect of a targeted intervention on PDES adoption. Uncertainty in estimates will be quantified using robust standard errors. The analysis reveals that the intervention increased PDES adoption by 20% in the treatment group compared to a control area, with a 95% confidence interval (CI) for the DiD estimate of [18%, 22%]. The DiD model effectively demonstrates how policy interventions can accelerate the uptake of PDES technology. Further research should explore scalability and long-term sustainability of these findings in other regions of Kenya. Power Distribution Equipment, Adoption Rate, Difference-in-Differences, Policy Impact 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:** Kenyan, DiD, econometrics, infrastructure, adoption, rural electrification, technological diffusion, impact assessment

## ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

**Email:** [info@parj.africa](mailto:info@parj.africa)

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** [app.parj.africa](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge