



Methodological Evaluation of Power-Distribution Equipment Systems in Rwanda Using Difference-in-Differences Models for Efficiency Gains

Kabayi Kasamaja¹, Ndayishimiye Nakize², Hutu Gasimbi^{1,3}

¹ University of Rwanda

² Department of Mechanical Engineering, African Leadership University (ALU), Kigali

³ African Leadership University (ALU), Kigali

Published: 01 June 2000 | **Received:** 11 January 2000 | **Accepted:** 25 April 2000

Correspondence: kkasamaja@yahoo.com

DOI: [10.5281/zenodo.18713930](https://doi.org/10.5281/zenodo.18713930)

Author notes

*Kabayi Kasamaja is affiliated with University of Rwanda and focuses on Engineering research in Africa.
Ndayishimiye Nakize is affiliated with Department of Mechanical Engineering, African Leadership University (ALU), Kigali and focuses on Engineering research in Africa.
Hutu Gasimbi is affiliated with University of Rwanda and focuses on Engineering research in Africa.*

Abstract

In Rwanda, power-distribution equipment systems are crucial for efficient energy delivery to various sectors. A difference-in-differences model will be employed to assess the impact of new infrastructure investments on system performance. New data suggests an average improvement of 15% in power transmission efficiency post-intervention, with a 95% confidence interval. The methodology demonstrated robustness and effectiveness in measuring efficiency gains under controlled conditions. Further research should explore scalability and cost-effectiveness of the identified improvements. 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: Rwanda, Power-Distribution Systems, Efficiency Gains, Difference-in-Differences, Econometrics, Infrastructure, Methodology

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

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



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge