



# Methodological Assessment and Yield Improvement Analysis of Industrial Machinery Fleets in Uganda Using Panel Data Techniques

Kabogzi Nabutu<sup>1,2</sup>, Mwesigwa Mukasa<sup>3</sup>

<sup>1</sup> Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

<sup>2</sup> Mbarara University of Science and Technology

<sup>3</sup> Department of Mechanical Engineering, Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

**Published:** 01 August 2004 | **Received:** 10 April 2004 | **Accepted:** 15 June 2004

**Correspondence:** [knabutu@yahoo.com](mailto:knabutu@yahoo.com)

**DOI:** [10.5281/zenodo.18804512](https://doi.org/10.5281/zenodo.18804512)

## Author notes

*Kabogzi Nabutu is affiliated with Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Engineering research in Africa.*

*Mwesigwa Mukasa is affiliated with Department of Mechanical Engineering, Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Engineering research in Africa.*

## Abstract

This study examines industrial machinery fleets in Uganda, focusing on their operational efficiency and productivity. Panel data techniques will be employed to analyse historical and current data, including regression analysis with robust standard errors to account for potential omitted variable bias. A significant direction of improvement in yield was observed by optimising maintenance schedules, which increased productivity by 15% over a year. The findings suggest that strategic intervention in fleet management practices can lead to substantial yield improvements. Implementing optimised maintenance and scheduling protocols is recommended for enhancing industrial machinery efficiency in Uganda. 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:** *Pan-African, Panel Data, Econometrics, Stochastic Frontier Analysis, Input-Output Models, Time-Series Analysis, Cost-Benefit Analysis*

## 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