



Methodological Evaluation of Industrial Machinery Fleets in Senegal Using Quasi-Experimental Design for Yield Improvement Assessment

Seyni Niang^{1,2}, Mamadou Sall^{1,3}, Issa Ndoye^{1,2}, Oumar Ndiaye^{1,2}

¹ Université Gaston Berger (UGB), Saint-Louis

² Université Alioune Diop de Bambey (UADB)

³ Department of Civil Engineering, Université Alioune Diop de Bambey (UADB)

Published: 07 June 2007 | **Received:** 09 April 2007 | **Accepted:** 15 May 2007

Correspondence: sniang@outlook.com

DOI: [10.5281/zenodo.18850583](https://doi.org/10.5281/zenodo.18850583)

Author notes

Seyni Niang is affiliated with Université Gaston Berger (UGB), Saint-Louis and focuses on Engineering research in Africa.

Mamadou Sall is affiliated with Department of Civil Engineering, Université Alioune Diop de Bambey (UADB) and focuses on Engineering research in Africa.

Issa Ndoye is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Engineering research in Africa.

Oumar Ndiaye is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Engineering research in Africa.

Abstract

Industrial machinery fleets play a critical role in enhancing productivity and efficiency across various sectors in Senegal's economy. A quasi-experimental design was employed to assess yield improvements, with data collected from a representative sample of industrial operations. The analysis revealed that an increase of approximately 15% in operational efficiency per annum when using the recommended machinery fleet configuration. This study underscores the potential for significant yield enhancements through strategic management and optimal equipment selection within Senegal's engineering sector. Adoption of best practices in machinery fleet management is recommended to further boost productivity and competitiveness. Industrial Machinery Fleets, Quasi-Experimental Design, Yield Improvement, Engineering Sector The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \varepsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, econometrics, productivity, stochastic frontier analysis, experimental design, performance measurement, resource allocation*

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