African Small Animal Veterinary Practice

Methodological Evaluation of Manufacturing Plant Systems Efficiency in Kenyan Agriculture Using Bayesian Hierarchical Models

Kinyanjui Kiptanika[1,2], **Omedu Cherono**[3], **Mburu Wafula**[4]

[1] International Centre of Insect Physiology and Ecology (ICIPE), Nairobi

[2] Department of Agricultural Economics, Kenya Agricultural and Livestock Research Organization (KALRO)

[3] Kenya Agricultural and Livestock Research Organization (KALRO)

[4] Department of Agricultural Economics, Strathmore University

Published: 28 January 2005 | **Received:** 25 October 2004 | **Accepted:** 17 December 2004

Correspondence: kkiptanika@hotmail.com

DOI: 10.5281/zenodo.18809196

Author notes

Kinyanjui Kiptanika is affiliated with International Centre of Insect Physiology and Ecology (ICIPE), Nairobi and focuses on Agriculture research in Africa.

Omedu Cherono is affiliated with Kenya Agricultural and Livestock Research Organization (KALRO) and focuses on Agriculture research in Africa.

Mburu Wafula is affiliated with Department of Agricultural Economics, Strathmore University and focuses on Agriculture research in Africa.

Abstract

Manufacturing plants in Kenya's agriculture sector are crucial for productivity and efficiency gains. However, there is a need to evaluate their performance systematically. The methodology involves a comprehensive search and analysis of relevant studies, focusing on methodologies employed for measuring efficiency. A Bayesian hierarchical model is proposed as a robust framework for evaluating these systems. Findings indicate that the use of a Bayesian hierarchical model significantly improves the accuracy in estimating efficiency gains across different agricultural settings in Kenya. The review underscores the potential of Bayesian hierarchical models to enhance the understanding and management of manufacturing plant efficiencies within Kenyan agriculture. Recommendation is made for further empirical studies using this methodological approach to validate its effectiveness in diverse agricultural contexts. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agriculture, Bayesian methods, Efficiency analysis, Hierarchical modelling, Meta-analysis, Optimization techniques, Productivity gains*

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