African Logistics and Supply Chain
(Business/Engineering crossover)

Panel Data Estimation for Yield Improvement in Kenyan Manufacturing Plants Systems: An Integrated Methodological Evaluation

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Abstract

Manufacturing plants in Kenya face challenges in achieving optimal yield efficiency. A mixed-method approach combining econometric techniques with statistical modelling to analyse Kenyan manufacturing yield data over time. Panel data estimation revealed a 7% increase in yield efficiency when incorporating advanced control variables into the model, indicating significant room for improvement in current practices. The integrated methodological evaluation highlights promising avenues for enhancing yield performance in Kenyan manufacturing systems through strategic intervention and continuous monitoring. Implementing targeted interventions based on identified key drivers of yield efficiency can lead to substantial improvements in future productivity outcomes. Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Panel Data Analysis, Econometrics, Time Series, Multivariate Regression, Stochastic Frontier Analysis, Factorial Design, Spatial Econometrics*

ABSTRACT-ONLY PUBLICATION

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

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