



Methodological Evaluation of Manufacturing Systems in Rwanda Using Time-Series Forecasting for Risk Reduction Assessment

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Abstract

Manufacturing systems in Rwanda are critical for economic growth but face challenges related to operational risks. The study employs ARIMA (AutoRegressive Integrated Moving Average) model for forecasting future trends in production output. Robust standard errors are used to quantify forecast uncertainty. A significant proportion (45%) of manufacturing plants exhibit stable but low growth rates, necessitating strategic interventions to enhance efficiency and mitigate risks. ARIMA models provide a reliable framework for predicting future performance in Rwanda's manufacturing sector, offering insights into risk reduction strategies. Implementing targeted training programmes and adopting advanced technologies can significantly improve the stability and growth of manufacturing systems in Rwanda. manufacturing systems, time-series forecasting, ARIMA model, risk reduction, Rwanda The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords:

Rwandan

Geographic

Terms:

Methodological

Time-series

Forecasting

ARIMA

Terms:

analysis

model

*Economic
Operational risk management*

impact

assessment

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