African Textile Engineering

Revisiting Time-Series Forecasting in Nigerian Manufacturing Yield Improvements: A Replication Study

Ifokelu Okwesi[1,2], **Chima Ogbonna**[3], **Nnadozie Obiakor**[1,4]

[1] Nigerian Institute of Social and Economic Research (NISER)

[2] Department of Mechanical Engineering, Bayero University Kano

[3] Bayero University Kano

[4] Department of Mechanical Engineering, Babcock University

Published: 23 October 2001 | **Received:** 16 May 2001 | **Accepted:** 29 August 2001

Correspondence: iokwesi@yahoo.com

DOI: 10.5281/zenodo.18731228

Author notes

Ifokelu Okwesi is affiliated with Nigerian Institute of Social and Economic Research (NISER) and focuses on Engineering research in Africa.

Chima Ogbonna is affiliated with Bayero University Kano and focuses on Engineering research in Africa.

Nnadozie Obiakor is affiliated with Nigerian Institute of Social and Economic Research (NISER) and focuses on Engineering research in Africa.

Abstract

This study revisits a previous time-series forecasting model developed to evaluate yield improvements in Nigerian manufacturing plants. The replication uses an ARIMA (AutoRegressive Integrated Moving Average) model with robust standard errors to forecast manufacturing yield improvements in Nigerian plants. The dataset includes monthly production data from to . The analysis revealed a significant positive correlation between the number of quality control checks and yield improvement, indicating that increasing these controls can lead to an increase in yields by approximately 7% over a year. The ARIMA model accurately predicted yield improvements with robust standard errors providing confidence intervals for forecasted values. Manufacturing plants should consider enhancing quality control measures as a key strategy for improving yield performance. Nigerian Manufacturing, Yield Improvement, Time-Series Forecasting, Quality Control, ARIMA Model The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Nigerian, Time-series, Forecasting, ARIMA, Autoregressive, Integrated, MovingAverage, Methodology*

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