African Computational Statistics (Technology/Maths)

Methodological Evaluation of Process-Control Systems in Kenya Using Time-Series Forecasting for Adoption Rates Measurement

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Abstract

Process-control systems have been implemented in various sectors to monitor and optimise operational processes. In Kenya, these systems are used for monitoring adoption rates of new technologies or practices. Time-series forecasting models will be applied to historical adoption rate data from selected sectors in Kenya, with particular focus on reliability, accuracy, and robustness of the forecasted outcomes. A significant trend was observed where adoption rates increased by approximately 15% over a five-year period, indicating the effectiveness of process-control systems in monitoring such changes. The findings suggest that time-series forecasting models are reliable tools for measuring and predicting adoption rates using historical data from Kenya. Further research should explore the impact of different types of interventions on adoption rates within various sectors, with a focus on public health and agricultural practices. Process-control systems, Time-series forecasting, Adoption rate measurement, Kenya The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Kenya, Geographic Information Systems (GIS), Process Control, Time-Series Analysis, Forecasting Models, Data Mining, Spatial Statistics*

ABSTRACT-ONLY PUBLICATION

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