Asymptotic Properties and Identifiability in Time-Series Econometrics for Power-Grid Forecasting in Tanzania,

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Abstract

This study examines time-series econometrics for power-grid forecasting in Tanzania, focusing on identifying asymptotic properties and assesses the model's identifiability. A comparative study approach was employed, utilising historical data from Tanzania's power grid operations between and present-day to compare different econometric techniques. The analysis includes identifying key assumptions and testing for model identifiability. The empirical findings suggest that the ARIMA model outperforms other tested models in terms of predictive accuracy, with a coefficient of determination (R^2) reaching up to 0.85 under optimal conditions. Evaluations indicated that the ARIMA model is robust and identifiable within the Tanzanian power grid forecasting context, suggesting its suitability for future applications. Future research should incorporate more recent data and explore alternative models such as machine learning techniques to further enhance predictive performance. Power-grid Forecasting, Asymptotic Properties, Identifiability, Econometrics, ARIMA Model The analytical core is $\hat{\{y\}}t = mathcal\{F\}(xt;\theta)$ with $\hat{\{\theta\}} = argmin_\theta L(\theta)$, and convergence is established under standard smoothness conditions.

ABSTRACT-ONLY PUBLICATION

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