



Methodological Evaluation of Secondary Schools Systems in Uganda Using Time-Series Forecasting Models for Risk Reduction Analysis

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Abstract

The secondary schools system in Uganda faces challenges such as resource scarcity and fluctuating enrollment rates. This review article employs a variety of time-series forecasting models including ARIMA (Autoregressive Integrated Moving Average) to analyse historical data from to . The study aims to identify patterns that can inform future policy decisions aimed at reducing risks associated with school systems. The analysis revealed a significant positive correlation between enrollment rates and per-student funding, suggesting an increase in resources leads to better educational outcomes for students. Time-series forecasting models provide valuable insights into the dynamic nature of secondary schools within Uganda's education sector. These models can be used to forecast future trends and inform policy adjustments aimed at risk reduction. Implementing targeted interventions based on model predictions could lead to more equitable resource allocation, thereby enhancing educational quality across all regions in Uganda. The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African demographics, Time-series analysis, Econometrics, Forecasting models, Educational policy, Risk assessment, Socioeconomic indicators*

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