



# Time-Series Forecasting Model Assessment in Ethiopian Secondary School Systems: A Clinical Outcomes Evaluation

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## Abstract

This study focuses on evaluating secondary school systems in Ethiopia by applying a time-series forecasting model to measure clinical outcomes. A mixed-method approach was employed, integrating statistical analysis with qualitative assessments. The time-series forecasting model used for this study is ARIMA (AutoRegressive Integrated Moving Average), which incorporates robust standard errors to account for prediction uncertainty. The forecasted outcomes showed a significant improvement in student vaccination rates over the next five years, with an estimated increase of 15% from current levels. This study validates the use of ARIMA as a reliable model for forecasting clinical outcomes in Ethiopian secondary schools, providing actionable insights to improve educational health services. Based on the findings, immediate interventions should focus on increasing vaccination coverage and enhancing school hygiene practices. Ethiopia, Secondary Schools, Time-Series Forecasting, ARIMA, Clinical Outcomes The empirical specification follows  $Y = \beta_{0+\beta} p X + v\text{arepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** Ethiopia, Geographic Information Systems, Time Series Analysis, Monte Carlo Simulation, Regression Models, Data Mining, Predictive Analytics

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