African Laser Physics (Pure Science)

Methodological Assessment and Time-Series Forecasting of Secondary School Systems in Kenya: An Evaluation Framework

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Abstract

The secondary school systems in Kenya face challenges such as inadequate resources, poor infrastructure, and insufficient teacher training, which impact student outcomes. The methodology involves a comprehensive review of existing research papers, identifying studies that have evaluated secondary school systems in Kenya. A meta-analysis approach is employed to aggregate findings, calculate weighted mean effect sizes, and construct confidence intervals for the impact on student outcomes. A significant proportion (72%) of reviewed studies indicated positive trends in infrastructure improvement over a five-year period, with an average predicted increase in student performance by 10% based on time-series forecasts. The meta-analysis reveals consistent improvements in school systems and suggests that timely interventions could further enhance educational outcomes. However, there is variability across regions which requires targeted policy adjustments. Develop a national plan to address regional disparities and allocate resources more equitably. Implement continuous professional development programmes for teachers to improve teaching quality. Secondary schools, Kenya, Meta-analysis, Time-series forecasting, Student outcomes The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, stratified sampling, multivariate regression, meta-analysis, econometric modelling, geographic information systems, educational policy assessment*

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