Forecasting System Reliability in Senegalese Secondary Schools Using Time-Series Models

Diop Ndiaye[1]**, Mamadou Sall**[2,3]

[1] Université Alioune Diop de Bambey (UADB)

[2] Department of Research, Université Alioune Diop de Bambey (UADB)

[3] Institut Sénégalais de Recherches Agricoles (ISRA)

Author notes

Diop Ndiaye is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Physics research in Africa. Mamadou Sall is affiliated with Department of Research, Université Alioune Diop de Bambey (UADB) and focuses on Physics research in Africa.

Abstract

The reliability of physics education systems in Senegalese secondary schools is a critical concern for educational policymakers. A time series forecasting model was developed to analyse data from multiple years of physics education assessments across Senegalese secondary schools. The model incorporates robust standard errors for uncertainty quantification. The forecasting model revealed a consistent upward trend in student performance over the past five years, with an estimated improvement rate of approximately 5% per annum. The time-series forecasting model demonstrated its predictive capability and reliability in assessing physics education system performance in Senegalese secondary schools. Policymakers should consider implementing interventions to maintain or accelerate the observed trend, ensuring continued improvement in physics education outcomes. The empirical specification follows $Y = \vec{\beta_{0+\beta}} \, p \, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, Senegalese, Time-series, Forecasting, Reliability, Methodology, Education*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge