Methodological Evaluation of Secondary Schools Systems in Uganda: Bayesian Hierarchical Model for System Reliability Assessment

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Abstract

The education sector in Uganda faces challenges related to secondary school systems, particularly in terms of resource allocation and student performance. A Bayesian hierarchical model will be employed to analyse the data from secondary schools in Uganda. This approach allows for the incorporation of spatial and temporal dependencies, thereby providing more accurate assessments. This study provides insights into the reliability of secondary school systems in Uganda, highlighting key factors affecting system performance and suggesting targeted interventions. Policy-makers should prioritise resource allocation based on regional needs identified through this analysis to enhance overall educational outcomes. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African education, Bayesian statistics, Hierarchical modelling, System reliability, Education policy, Resource allocation, Quantitative methods*

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