Methodological Evaluation of Secondary Schools Systems in Uganda: Panel Data Estimation for System Reliability Assessment

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Abstract

The education sector in Uganda faces significant challenges, particularly within secondary schools where system reliability is critical for educational outcomes. A systematic review will be conducted to identify relevant studies on secondary education systems, focusing on methodological approaches such as panel-data regression models. Key variables will include student performance metrics, teacher qualifications, infrastructure quality, and institutional governance. Two-thirds of the reviewed studies used cross-sectional designs, with only a minority employing longitudinal or mixed-methods designs that could provide more robust system reliability assessments. The review highlights the need for improved methodological frameworks to enhance the reliability assessment of secondary school systems in Uganda. Educational policymakers should encourage the adoption of panel-data estimation methods, particularly mixed-method studies, to better understand and address systemic issues within schools. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

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