



Multilevel Regression Analysis to Evaluate Risk Reduction in Ghanaian Secondary Schools Systems

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Abstract

Secondary schools in Ghana face significant operational challenges, including inadequate infrastructure and financial constraints. A multi-level regression model was employed to analyse data from a sample of 150 schools. The model included socio-economic indicators, infrastructure quality, and financial resources as predictors of risk reduction effectiveness. The model revealed that investment in school infrastructure significantly reduced operational risks by approximately 20% across the sampled schools. This study provides empirical evidence on the efficacy of targeted investments in school infrastructure for mitigating operational risks in Ghana's secondary education system. Policy makers should prioritise investments in school infrastructure to enhance educational quality and stability. Secondary Schools, Risk Reduction, Infrastructure Investment, Multilevel Regression Analysis The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Sub-Saharan, stratified, multilevel, regression, variance, evaluation, constraints

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