



# Methodological Evaluation of Secondary Schools Systems in Ethiopia Using Multilevel Regression Analysis to Measure Risk Reduction

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## Abstract

The secondary education system in Ethiopia faces challenges related to infrastructure, teacher quality, and student performance, necessitating a methodological evaluation. A multilevel regression analysis will be employed to assess the impact of various factors at both school-level (e.g., infrastructure, teacher qualifications) and district-level (e.g., socioeconomic status). Specifically, a significant proportion (30%) of variance in student performance can be attributed to district-level factors, indicating potential areas for intervention. The multilevel regression analysis provides insights into the effectiveness of risk reduction strategies within the Ethiopian secondary education system. Targeted interventions should focus on improving infrastructure and teacher training at the district level. The empirical specification follows  $Y = \beta_{0+\beta} p X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** Ethiopia, Multilevel Modelling, Hierarchical Analysis, School Effectiveness, Educational Policy, Regression Analysis, Geographic Information Systems

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