African Agricultural Entomology (Agri/Plant Science)

Methodological Evaluation of Secondary School Systems' Efficiency Gains in Kenya Using Multilevel Regression Analysis

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Abstract

The effectiveness of secondary school systems in Kenya has been a subject of interest for policymakers aiming to improve agricultural productivity and rural development. We employed multilevel regression analysis to assess the impact of secondary school systems on agricultural productivity. The model includes fixed effects for schools and random effects for students within schools. The multilevel regression analysis revealed that a 1% increase in student enrollment at secondary schools was associated with a 0.8% increase in maize yields, indicating significant gains in agricultural efficiency. Multilevel regression analysis provided insights into the educational system's impact on agriculture, highlighting specific gains from improved school attendance. Policymakers should prioritise investment in secondary schools to further enhance agricultural productivity and rural development outcomes. secondary schools, multilevel regression, agricultural efficiency, Kenya The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African geography, multilevel modelling, efficiency analysis, regression techniques, educational policy, pedagogical methods, hierarchical structures*

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