Methodological Evaluation of Secondary School Systems in Ghana Using Difference-in-Differences for Yield Improvement Analysis

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Abstract

The secondary education system in Ghana is a focal point for enhancing agricultural productivity through improved educational outcomes. A Difference-in-Differences model was employed, with pre- and post-intervention data from randomly selected schools in Ghana's agricultural regions as the primary dataset. The DiD approach accounts for potential confounding factors by comparing changes within and between treatment groups over time. The analysis revealed a significant improvement in agricultural yield among treated schools ($p < 0.05$), with an estimated increase of 12% in crop productivity post-intervention. The DiD model provided robust evidence supporting the positive impact of secondary education on agricultural yields, contributing to sustainable development goals. Investment in secondary school infrastructure and teacher training is recommended for further yield improvements. secondary schools, agriculture, difference-in-differences (DiD), Ghana, crop productivity The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, Agricultural Productivity, Social Sciences, Econometrics, DID, Yield, Ghanaian Education Systems*

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