African Animal Welfare Studies (Agri/Animal Science)

Methodological Evaluation of Field Research Stations Systems in Ghana Using Difference-in-Differences for Yield Improvement Studies

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Abstract

Field research stations in Ghana have been established to improve agricultural yields through various interventions. However, their effectiveness varies significantly across different settings and methodologies. This study employed a systematic review approach to analyse existing DiD models applied to yield improvement studies from various field research stations. The analysis included meta-regression and sensitivity analyses to assess the robustness of findings across different stations and methodologies. The analysis revealed that while some stations demonstrated significant yield improvements (e.g., 15% increase in maize yields), others showed no substantial change, highlighting methodological inconsistencies and variability. Despite mixed results, this meta-analysis provided insights into the effectiveness of different research station methodologies on agricultural yield improvement in Ghana. Future studies should focus on harmonizing methodologies to enhance the reliability of findings. Researchers are advised to adopt standardised methodologies for consistent data collection and analysis, which could improve the comparability and interpretability of results across various stations. Meta-analysis, Difference-in-Differences, Agricultural research, Yield improvement, Field stations The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Geographic, Agricultural, Evaluation, Methodology, Randomized-Controlled, Difference-in-Differences, Yield, Impact, Innovation*

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