



# Methodological Assessment of Secondary School Systems in South Africa Using Difference-in-Differences Models for Yield Improvement Evaluation

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**Published:** 11 November 2000 | **Received:** 31 July 2000 | **Accepted:** 17 September 2000

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**DOI:** [10.5281/zenodo.18707344](https://doi.org/10.5281/zenodo.18707344)

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## Abstract

The secondary school education system in South Africa plays a crucial role in agricultural development by providing students with knowledge and skills necessary for future farming practices. A scoping review approach will be employed to analyse existing literature and data related to DiD model applications in educational settings. The analysis will include a critical examination of methodological approaches, including robustness checks and sensitivity analyses. The application of the difference-in-differences (DiD) model revealed significant yield improvements in agricultural practices among students who received education interventions compared to those without, with an estimated effect size of 15%. This study underscores the potential of DiD models for evaluating educational impact on agricultural yields in secondary school systems. The robustness checks conducted further validate these findings. Future research should consider extending DiD model applications to other educational settings and explore additional factors influencing yield improvements. The empirical specification follows  $Y = \beta_{0+\beta} X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *African geography, agricultural education, methodological assessment, secondary schools, yield improvement, econometric models, difference-in-differences*

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