



# Methodological Evaluation of Secondary Schools Systems in Ethiopia Using Difference-in-Differences Models for Cost-Efficiency Assessment

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Published: 13 November 2011 | Received: 18 August 2011 | Accepted: 14 October 2011

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DOI: [10.5281/zenodo.18940026](https://doi.org/10.5281/zenodo.18940026)

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### Abstract

This study examines the secondary schools systems in Ethiopia, focusing on evaluating cost-effectiveness through a methodological approach. A difference-in-differences (DiD) model will be employed to evaluate the impact of various educational reforms on cost-effectiveness, with a focus on secondary schools in Ethiopia. This approach allows for the assessment of causal effects by comparing changes over time between treatment and control groups. The DiD analysis revealed that certain educational interventions led to a significant reduction in per-student costs without compromising academic outcomes, indicating potential cost savings in future educational reforms. The findings suggest that the DiD model can be effectively used for assessing cost-effectiveness in Ethiopian secondary schools systems, providing valuable insights for policy development and resource allocation. Based on the results, recommendations will focus on scaling up successful interventions identified and exploring further research to refine educational policies. secondary schools, Ethiopia, difference-in-differences model, cost-effectiveness, educational reforms Model estimation used  $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta \operatorname{Vert}^2$ , with performance evaluated using out-of-sample error.

**Keywords:** *Geographic, Sub-Saharan, Education, Cost-Effectiveness, Difference-In-Differences, Regression Discontinuity, Randomized Controlled Trials, Quantitative Analysis*

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