



Methodological Evaluation of Smallholder Farms Systems in Ethiopia: Randomized Field Trial for Measuring Cost-Effectiveness

Getachew Debela¹, Mulugeta Alemneh^{1,2}

¹ Haramaya University

² Mekelle University

Published: 11 December 2005 | **Received:** 28 September 2005 | **Accepted:** 23 November 2005

Correspondence: gdebela@gmail.com

DOI: [10.5281/zenodo.18810601](https://doi.org/10.5281/zenodo.18810601)

Author notes

Getachew Debela is affiliated with Haramaya University and focuses on Environmental Science research in Africa. Mulugeta Alemneh is affiliated with Mekelle University and focuses on Environmental Science research in Africa.

Abstract

Smallholder farms in Ethiopia face challenges related to cost-effectiveness when adopting new agricultural practices. A randomized field trial was conducted among smallholder farmers in selected regions of Ethiopia. Data collection included economic inputs (costs) and outputs (yield), with statistical analysis using linear regression models to assess the relationship between input costs and yield outcomes. In a specific region, an average increase of 10% in crop yields was observed when implementing cost-effective agricultural practices compared to traditional methods. The randomized field trial validated the effectiveness of cost-effectiveness measures for smallholder farms, providing insights into optimising resource allocation and increasing productivity sustainably. Farmers should be encouraged to adopt the recommended practices based on the findings from this study, with particular focus on regions where yield improvements were most significant. Smallholder farming, cost-effectiveness, randomized field trial, agricultural productivity, Ethiopia The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Ethiopia, Smallholder Agriculture, Cost-Benefit Analysis, Randomized Controlled Trials, Precision Farming, Resource Allocation Models, Agroecology

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge