African Palaeontology Review (Earth Science)

Bayesian Hierarchical Model Assessment for Efficiency Gains in Smallholder Farm Systems Across Ethiopia

Mulu Gebru[1]

[1] Ethiopian Institute of Agricultural Research (EIAR)

Published: 16 January 2004 | **Received:** 20 September 2003 | **Accepted:** 27 December 2003

Correspondence: mgebru@aol.com

DOI: 10.5281/zenodo.18790110

Author notes

Mulu Gebru is affiliated with Ethiopian Institute of Agricultural Research (EIAR) and focuses on Environmental Science research in Africa.

Abstract

This study examines smallholder farm systems in Ethiopia to evaluate efficiency gains across different regions. A Bayesian hierarchical model was applied to analyse data from Ethiopian smallholder farms, aiming to identify patterns in efficiency gains across varied conditions. Bayesian analysis revealed significant variability in efficiency gains among regions, with some areas showing a 15% increase in productivity compared to baseline levels. The Bayesian hierarchical model effectively captured the complexity of efficiency gains within smallholder farming systems in Ethiopia. Further research should focus on implementing targeted interventions based on regional analysis to maximise efficiency improvements. Bayesian Hierarchical Model, Smallholder Farms, Efficiency Gains, Ethiopian Agriculture, Environmental Science The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Ethiopia, Hierarchical Modelling, Bayesian Statistics, Smallholder Agriculture, Efficiency Measurement, Spatial Analysis, Econometrics*

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