African Ethnoecology (Environmental/Social/Cross-disciplinary)

Methodological Evaluation of Smallholder Farms Systems in Ghana Using Difference-in-Differences Model for Cost-Effectiveness Measurement

Achamfu Fosu[1,2], **Yaw Afriyie**[3,4], **Abena Agyeman**[1,3], **Kwesi Adjei**[5,6]

[1] Water Research Institute (WRI)

[2] Department of Advanced Studies, Ashesi University

[3] University of Cape Coast

[4] Department of Interdisciplinary Studies, Water Research Institute (WRI)

[5] Ghana Institute of Management and Public Administration (GIMPA)

[6] Department of Research, Water Research Institute (WRI)

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Correspondence: afosu@outlook.com

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Author notes

Achamfu Fosu is affiliated with Water Research Institute (WRI) and focuses on Environmental Science research in Africa.
Yaw Afriyie is affiliated with University of Cape Coast and focuses on Environmental Science research in Africa.
Abena Agyeman is affiliated with Water Research Institute (WRI) and focuses on Environmental Science research in Africa.
Kwesi Adjei is affiliated with Ghana Institute of Management and Public Administration (GIMPA) and focuses on Environmental Science research in Africa.

Abstract

Smallholder farming systems in Ghana face significant challenges related to resource management and economic viability. A systematic literature search was conducted using databases such as PubMed and Google Scholar. Studies were selected based on relevance to smallholder farming systems in Ghana, with emphasis on empirical applications of DiD models in environmental and economic analyses. The analysis revealed that the DiD model has been applied effectively across various contexts but faces challenges related to data availability and temporal consistency. Despite these challenges, the DiD model remains a robust tool for assessing cost-effectiveness in smallholder farms. Future research should focus on improving data collection methods and enhancing temporal alignment of studies. Researchers are encouraged to adopt standardised methodologies and share their findings openly to facilitate peer review and validation. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Geographic, Kenya, Smallholders, Farm, Sustainability, Evaluation, Systematic, Methodology, Modelling, Resource, Mangement, Innovation, Policy, Development, Contextualization, Qualitative, Quantitative, Comparative, Empirical, Theoretical, Review, Analysis, Indicators, Frameworks, Measurement, Outputs, Inputs, Return, ROI, Effectiveness, Impact, Constraints, Constraints*

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