Time-Series Forecasting Model for Measuring Adoption Rates in Smallholder Farms Systems in Ethiopia

Birtukan Gobana[1]**, Getatchew Kassa**[1,2]

[1] Addis Ababa University

[2] Bahir Dar University

Correspondence: bgobana@hotmail.com

Author notes

Birtukan Gobana is affiliated with Addis Ababa University and focuses on Agriculture research in Africa.
Getatchew Kassa is affiliated with Addis Ababa University and focuses on Agriculture research in Africa.

Abstract

This study examines the adoption rates of agricultural innovations in smallholder farms within Ethiopia's rural landscapes. A time-series analysis approach was employed using the ARIMA (AutoRegressive Integrated Moving Average) model. Robust standard errors were used to account for uncertainty in parameter estimates. The ARIMA(1,1,0) model provided a good fit with a coefficient of determination (R^2 = 0.85), indicating that the model explains approximately 85% of the variation in adoption rates over time. The study validated the effectiveness of the ARIMA model for forecasting future adoption trends, highlighting significant increases in adoption from year to year. Further research should consider incorporating additional variables such as socio-economic factors and environmental conditions to enhance predictive accuracy.

ABSTRACT-ONLY PUBLICATION

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

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