African Laser Physics (Pure Science)

Methodological Evaluation of Smallholder Farm Systems in Rwanda Using Time-Series Forecasting Models

Kizito Mugyenyi[1]

[1] Department of Interdisciplinary Studies, African Leadership University (ALU), Kigali

Published: 11 November 2008 | **Received:** 02 June 2008 | **Accepted:** 29 September 2008

Correspondence: kmugyenyi@aol.com

DOI: 10.5281/zenodo.18870534

Author notes

Kizito Mugyenyi is affiliated with Department of Interdisciplinary Studies, African Leadership University (ALU), Kigali and focuses on Physics research in Africa.

Abstract

Smallholder farming in Rwanda is a critical sector for agricultural productivity and rural livelihoods. The study employs ARIMA (AutoRegressive Integrated Moving Average) model to analyse time-series data from Rwanda's Ministry of Agriculture. The ARIMA(2,1,0)[0] model showed an adoption rate trend with a confidence interval around the mean forecast value of 95%. ARIMA models effectively predict smallholder farm technology adoption over time in Rwanda, offering insights for policy makers and farmers. Continue monitoring trends using ARIMA analysis for future intervention planning. Smallholder farming, Rwanda, Time-series forecasting, ARIMA model, Adoption rates The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Rwanda, Smallholder Agriculture, ARIMA, Time Series, Forecasting, Econometrics, Spatial Analysis*

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