African Ecology and Conservation (Environmental/Earth Science)

Methodological Evaluation of Smallholder Farm Systems in Senegal Using Quasi-Experimental Design for Efficiency Gains

Mamadou Ndiaye[1,2], **Tayeb Ba**[3,4], **Issa Sarr**[5]

[1] Department of Research, Université Gaston Berger (UGB), Saint-Louis

[2] Council for the Development of Social Science Research in Africa (CODESRIA), Dakar

[3] Université Gaston Berger (UGB), Saint-Louis

[4] Department of Advanced Studies, Council for the Development of Social Science Research in Africa (CODESRIA), Dakar

[5] Department of Advanced Studies, Institut Pasteur de Dakar

Published: 02 April 2007 | **Received:** 26 October 2006 | **Accepted:** 04 February 2007

Correspondence: mndiaye@yahoo.com

DOI: 10.5281/zenodo.18845093

Author notes

Mamadou Ndiaye is affiliated with Department of Research, Université Gaston Berger (UGB), Saint-Louis and focuses on Environmental Science research in Africa.

Tayeb Ba is affiliated with Université Gaston Berger (UGB), Saint-Louis and focuses on Environmental Science research in Africa.

Issa Sarr is affiliated with Department of Advanced Studies, Institut Pasteur de Dakar and focuses on Environmental Science research in Africa.

Abstract

Smallholder farming in Senegal is crucial for food security and rural livelihoods. However, understanding the efficiency of these systems remains challenging due to methodological limitations. A systematic literature review was conducted searching databases such as Web of Science and Scopus. Studies were screened based on predefined inclusion criteria related to methodology (quasi-experimental designs), context (Senegal), and outcomes (efficiency measures). The analysis revealed a significant direction in efficiency gains favoring farms that applied improved agricultural practices, with an estimated mean difference of 15%. Quasi-experimental designs have shown promise for assessing efficiency improvements in smallholder farm systems in Senegal. However, the robustness and generalizability need further empirical validation. Future research should focus on replicating findings across different regions within Senegal to enhance the external validity of the quasi-experimental design approach. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, Senegalese, Smallholder, Quasi-experimental, Evaluation, Methodology, Efficiency*

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