Methodological Assessment of Quasi-Experimental Designs in Smallholder Farm Systems of Senegal: A Systematic Literature Review

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Abstract

Quasi-experimental designs are increasingly used in smallholder farm systems to assess the impact of interventions without random assignment. A comprehensive search strategy was employed across multiple databases including PubMed, Scopus, and Web of Science. Studies were screened based on predefined inclusion criteria, and data extraction included assessment of study design quality using the Cochrane Risk of Bias Tool. The review identified a significant proportion (25%) of quasi-experimental designs that did not include appropriate controls or outcome measurements, indicating potential methodological weaknesses. This systematic review highlights critical areas for improvement in the design and reporting of quasi-experimental studies on smallholder farms in Senegal. Researchers are encouraged to adopt more rigorous quality assessment tools and transparent reporting practices to enhance the validity of their findings. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, African, quasi-experimental, randomized controlled trial, intervention assessment, econometric methods, qualitative analysis*

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