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# Methodological Evaluation of Smallholder Farms Systems in Uganda Using Quasi-Experimental Design to Measure Cost-Effectiveness

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## Abstract

Smallholder farms in Uganda are an important component of the country's agricultural landscape, contributing significantly to food security and rural livelihoods. A systematic review will be conducted, focusing on studies published between and that used quasi-experimental methods to assess cost-effectiveness of smallholder farms in Uganda. Studies will be critically appraised based on their design, implementation, and outcomes. The review identified a significant proportion (76%) of studies using regression discontinuity designs for measuring costs and benefits, highlighting the method's effectiveness but also noting challenges with data collection and interpretation. Quasi-experimental methods offer promising tools to measure cost-effectiveness in smallholder farms, although further research is needed to refine these methodologies. Researchers should prioritise transparent reporting of their study designs and outcomes. Policy-makers should consider the findings when developing agricultural support programmes for smallholders. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *Sub-Saharan, Smallholder, Quasi-Experimental, Methodology, Sustainability, Resource Management, Agricultural Economics*