



# Replication Study on Technology Adoption Strategies for Smallholder Farmers to Enhance Coffee Production Yields in Southern Ethiopia

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## Abstract

This study aims to replicate a previous replication study on technology adoption strategies for smallholder farmers in Southern Ethiopia to enhance coffee production yields. A replication study design was employed to ensure consistency in methodology. Data collection methods mirrored those used in the original study, including surveys conducted among smallholder farmers ( $n=300$ ) *in two selected districts within Southern Ethiopia*. The analysis utilised a linear regression model with robust standard errors to account for potential confounding variables. A significant positive correlation was observed between the adoption of precision agriculture technologies and coffee production yields, with an estimated increase of 12% in yield per hectare among farmers who adopted these technologies compared to those who did not. Robustness checks confirmed the consistency of results across different regions within Southern Ethiopia. The replication study supports the effectiveness of precision agriculture technologies in enhancing coffee production yields for smallholder farmers, with a notable increase observed in yield per hectare among adopters. Recommendation is to implement targeted training programmes and provide access to affordable technology solutions to support smallholder farmers in Southern Ethiopia. This will contribute to sustainable agricultural development and improve livelihoods.

**Keywords:** *Ethiopia, Geographic Information Systems (GIS), Participatory Rural Appraisal (PRA), Technology Acceptance Model (TAM), Precision Agriculture, Smallholder Farmers, Yield Monitoring System*

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