

Extended Abstract

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Paper Title	Gendered constraints to the adoption of sustainable land management practices in Southeast Nigeria
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Abstract	200 words max
<p>Although sustainable land management practices (SLMPs) can offer economic and food security opportunities for farmers, successful uptake of these practices faces several constraints, some of which are gendered. Using a case study of 480 randomly sampled farmers in Southeast Nigeria, this study aims to identify constraints to the adoption of SLMPs and to investigate whether these constraints are different for male- and female-headed households. Qualitative and quantitative data collection were collected using a questionnaire survey, in-depth interviews and focus group discussions. Quantitative data were analysed using Principal Component Analysis (PCA) and Logistic regression (logit) models. Thematic analysis was used to analyse qualitative data. The PCA results revealed that economic and financial constraints, the peculiar nature of certain SLMPs, technical constraints, and property rights over land are the main constraints to the adoption of SLMPs. The logit models suggested that constraints reflecting economic and financial concerns and land property rights were more likely to be found for female-headed households rather than for male-headed households. Based on this finding, the study recommends that development interventions and institutions promoting SLMPs should advocate and take measures designed to tackle inequalities based around gender.</p>	
Keywords	Sustainable land management practices; adoption; constraints; gender.
JEL Code	Agricultural R&D; Agricultural Technology; Biofuels; Agricultural Extension Services Q160
Introduction	100 – 250 words
<p>The adoption of sustainable land management practices (SLMPs) is increasingly recognised as a solution to achieving more sustainable land use and avoiding the problems of land degradation currently affecting many areas of sub-Saharan Africa (Wairiu, 2017). As the stewards of agricultural land, farmers are expected to move away from their traditional but unsustainable methods of farming and adopt SLMPs in order to abate the continued degradation of agricultural land. However, the extent to which farmers can navigate this change may be moderated by a multitude of factors constraining their adoption of SLMPs. Previous studies report a multitude of factors constraining farmers' adoption of SLMPs, including inadequate financial resources, lack of knowledge, insufficient operational policy support, inefficient</p>	

delivery of information by extension agents, and land tenure insecurity (Rahman et al., 2017; Autio et al., 2021). Other research further suggests that certain constraints to the adoption of SLMPs are more common for female farmers compared to their male counterparts (Tsige et al., 2020).

The objective of this research is to identify constraints to the adoption of SLMPs and to investigate whether these constraints are different for male- and female-headed households based on a case study of 480 randomly sampled farmers from Imo and Anambra states in Southeast Nigeria. The study used mixed methods in both data collection and analysis. Qualitative data were collected through six focus group discussions and 10 interviews.

Methodology

100 – 250 words

Quantitative Data collection

Using questionnaire survey, information was collected on the household and plot-level characteristics of farmers. To investigate constraints to the adoption of SLMPs, a list of 17 potential constraints to the adoption of SLMPs, based on a literature review, was presented to farmers. The farmers were then asked to evaluate the level of constraint faced when adopting, or considering adopting, SLMPs based on a Likert scale.

Data analysis

Qualitative data were analysed using thematic analysis. Quantitative analysis was undertaken in four main steps. In the first step, a Principal Component Analysis (PCA) was applied to group constraints to the adoption of SLMPs into four main component factors: economic/financial constraints, constraints related to the peculiar nature of certain SLMPs, technical constraints, constraints related to land property rights. In step 2, since there were multiple items for each factor, the prorated mean score of the items for each constraint was computed for each participant. In Step 3, for each component factor, participants were categorised as: (i) “constrained” (with a mean score \geq the mean of the response values (2.5) which was taken as the cut-off point) and were assigned a value of 1 and otherwise were assigned a value of 0 - “not constrained”. In step 4, categories of farmers were used as a dependent variable in a logistic regression (logit) model to examine the influence of gender in

the household on each of the constraints. Four separate logit models were constructed, each of them modelling the effect of the gender of the household head on constraints to the adoption of SLMPs, while controlling for other relevant socio-economic and institutional variables.

Results

100 – 250 words

The PCA yielded an acceptable Kaiser-Meyer-Olkin (KMO) value of 0.88 and the Bartlett test of sphericity was statistically significant ($p=0.000$), confirming that the dataset is suitable for PCA (Kissi et al., 2017). The Composite reliability score - 0.923, 0.792, 0.705, 0.787, indicated an acceptable level of internal consistency of the items on the scale.

In terms of the logit models, the result of Model 1 (dependent variable = economic/financial constraints) shows a significant negative relationship between the gender of the household head and economic/financial constraints ($P<0.1$). Likewise, the result of Model 4 (dependent variable = constraints related to land property rights) shows a significant negative relationship between the gender of the household head and land property rights constraints ($P<0.1$).

Other factors that predict the prevalence of constraints to SLMP adoption include: for Model 1 - household access to remittances ($P< 0.01$), plot fragmentation ($P<0.05$), access to credit ($P< 0.05$), and farm income ($P< 0.05$).

For Model 2 (dependent variable = constraints related to the peculiar nature of certain SLMPs) - household access to remittances ($P< 0.1$), farm income ($P< 0.05$), household size ($P< 0.05$), plots with tenure documentation ($P< 0.01$), access to SLMPs training ($P< 0.05$), risk averse farmer ($P< 0.01$), and positive beliefs towards SLMPs ($P< 0.05$).

Model 3 (dependent variable = technical constraints) - farm experience ($P< 0.1$), access to credit ($P< 0.01$), farm income ($P< 0.05$), plots with tenure documentation ($P< 0.1$), poor road network ($P< 0.05$), and access to SLMPs training ($P< 0.1$).

Model 4 – educational status ($P< 0.1$), tenure security ($P< 0.01$), plot fragmentation ($P< 0.05$), household size ($P< 0.1$), and plots with tenure documentation ($P< 0.01$).

Discussion and Conclusion

100 – 250 words

The results show that while economic/financial constraints, constraints related to the peculiar nature of certain SLMPs, technical constraints, and constraints related to land property rights are the most common constraints to the adoption of SLMPs in Southeast Nigeria, economic/financial constraints and land property rights constraints are more likely to be experienced by female headed households than male headed households. The results of this study are consistent with previous research that reported gender-differentiated constraints to the adoption of SLMPs (Chibowa et al., 2020; Tsige et al., 2020). In-depth interviews in the study areas revealed that the practice of customary inheritance rights and traditional land tenure systems exclude and/or make it more difficult for women to gain access to land. Moreover, interviews with women farmers highlighted complaints that as a result of their small scale of production and their lack of access to other productive resources (including land) relative to males, they are financially constrained when implementing SLMPs. This finding is consistent



with Kpoor's (2019) study in Ghana, that reported that male-headed households have greater economic assets than female-headed ones.

These findings suggest that much work remains to be done in addressing gender-based challenges in the adoption of SLMPs in Nigeria. Based on this, the study recommends that development interventions and institutions promoting SLMPs should advocate and take measures to tackle the inequalities based on gender embedded in the norms of the society. Changing prejudiced customary laws would require the collaborative efforts of organizations at local, regional and national levels.

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