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Assessment of intertemporal changes of land allocation to CSA practices and associated institutional framework in sub-Saharan Africa

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Abstract

Compelling evidence in sub-Saharan Africa (SSA) shows that climate smart agriculture (CSA) has a positive impact on agricultural productivity. However, the uptake of CSA remains low, probably due to anthropogenic or human-related decisions but also to the countries' policy direction concerning CSA practices. This paper assesses the households' decisions to allocate agricultural land to CSA technologies in spatial and temporal scales, as well as the institutional and policy strategies susceptible to promote the scaling of CSA practices among households. We use the state-contingent theory and mixed methods to analyse various primary and secondary data sources from Kenya, Malawi and Uganda. The results show that household decision to use CSA and the extent of agricultural land allocation to CSA remains low, with a negative trend over time in SSA. While agricultural land is increasing, forestland is decreasing across the target countries. Since the year 2000, the area under irrigation has doubled in Malawi and increased by 50% in Kenya, while little change was observed in Uganda. Owned land and access to land through rental markets were positively associated with land allocation to CSA technologies, particularly where land pressure is high. This was the case for Malawi, where 46.3% of land was allocated to CSA practices over the last 5 years, contrasting with the 10.3% over the same period in Uganda. Soil control measures, use of organic manure and irrigation were common CSA practices between Kenya, Malawi and Uganda. Results also show that households experiencing rainfall shocks in a crop dominated production system, such as in Malawi, significantly ($p < 0.05$) allocate more land to CSA practices the following year without increasing the extent of land allocation to CSA. The policy assessment at country level suggests that adaptation (54%) is the focus of CSA strategies in SSA countries (67% for Kenya, 50% for Malawi and Uganda). Therefore, scaling up CSA in SSA will require that agricultural-related policies to focus on access to land and the associated effects on application of CSA practices at the household level across space and over time.

Keywords: Agricultural policy, climate change adaptation, Kenya, land allocation, Malawi, Uganda