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Title: Climate Smart Agriculture technology adoption: An assessment of young farmers’ technology adoption in the Northern Province of Zambia

Climate change is a global challenge and varying efforts have been taken through initiatives such as: the formation of the Intergovernmental Panel on Climate Change (IPCC), the Kyoto Protocol, the Sustainable Development Goals (SDGs), and the Paris Agreement among others. Despite these global efforts, climate change impacts are severe on developing countries like Zambia through sporadic weather conditions leading to droughts and floods, which affect 70% of the farming population who rely on agriculture. Further, literature showed that between 1960 and 2003, Zambia’s average temperature rose by 1.3 degrees Celsius and rainfall had decreased by 2.3 percent (%) each decade. The CSA objectives include: (i) sustainably increasing agriculture productivity and incomes; (ii) adapting to climate change; and (iii) reducing greenhouse gas emissions. In view of this, there has been a call for sub-Saharan Africa (SSA) to adopt sustainable farming practices that meet the CSA objectives. Although CSA adoption has proven to be beneficial for farmers, uptake of CSA technologies by smallholder farmers in Zambia has been very low – less than 10%. Therefore, the objective of the study is to investigate factors that influence adoption of CSA technologies among smallholder farmers focusing on crop rotation (for adaptation) and an environmentally efficient stove (for mitigation). Our study uses a recursive bi-variate probit model to estimate the analysis and assess the role of age in adoption decisions. Preliminary findings show that human and social capital, wealth, climate change awareness, types of crops and location affect a household decision to adopt technologies. Further, we show disparities between male and female headed households based on wealth status, implying women had a disadvantage on resource access. Our findings support the importance of CSA in combating climate change and productivity improvements, as well as the role of social capital in creating awareness and the resulting influence on adoption decisions. Our main contribution is the impact of demographic diversity of age and how different age groups would respond to agricultural technology innovations. This adds a new dimension to the debate on sustainable agriculture in the context of climate change.