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Digital literacy and rural empowerment: enhancing access to digital agricultural and financial services in Kenya and Mali

ALBERT NSENGUMUREMYI¹, TIM ÖLKERS², OLIVER MUSSHOF³

¹*The University of Goettingen , Department of Agricultural Economics and Rural Development, Germany*

²*Humboldt-University of Berlin, Department of Agricultural Economics,*

³*University of Göttingen, Dept. for Agricultural Economics and Rural Development, Germany*

Abstract

In this digital era, the ability to navigate and use digital tools is becoming increasingly essential, particularly in sub-Saharan Africa where digital platforms in agriculture and finance are transforming rural economies. Despite the growth of digital services in Kenya and Mali, many smallholder farmers remain excluded due to limited digital competencies. This study draws on primary data from approximately 700 Kenyan and 1,500 Malian smallholders to analyse the demographic and socio-economic factors associated with digital literacy. Using a multi-method approach, we assess how these associations vary across country contexts, uncover the latent structure of digital literacy through latent class analysis, and evaluate the relative contribution of key correlates using Shapley values to better understand the drivers of digital inclusion among rural households. Our results reveal that education, age, and smartphone access are statistically significantly associated with digital literacy. Furthermore, financial and digital literacy complement each other in specific subgroups. Latent class analysis uncovers heterogeneous digital literacy profiles, with Kenyan smallholders being generally more digitally capable than their Malian counterparts. Additionally, Shapley values expose the relative importance of different digital literacy components which vary across Kenya and Mali. These findings point to the need for targeted digital inclusion strategies that address both access and skills. The findings also highlight important cross-country differences in digital engagement that have implications for the design of inclusive digital agricultural and financial services. By identifying who is being left behind and why, the study provides actionable evidence to support more inclusive digital ecosystems and foster rural resilience in Sub-Saharan Africa’s digital economy.

Keywords: Digital financial services, Kenya, keywords: digital literacy, latent class analysis, Mali, smallholder farmers