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Title: Climate change perception and system of rice intensification (SRI) in Tanzania



Farmers in much of the African continent suffer from persistently low productivity due among others to soil erosion, over-reliance on rainfall, and limited use of improved seeds and fertilizers. The limited uptake of improved varieties is particularly puzzling because their overwhelmingly adoption in Latin America and Asia since the 1960s has led to an unprecedented increase in agricultural productivity (“Green Revolution”) and a decrease in rural poverty. While a rich body of literature attests to the potential for such technologies to induce productivity enhancement, their associated risk enhancement has been under-studied. This article assesses the consequential risk impacts of the recent system of rice intensification (SRI) implemented in the Morogoro region of Tanzania using household and farm plot level data extended to incorporate farmers’ perceptions of climate change. We implement a moment approximation approach that accounts for the impacts of the technology on the first three moments of crop yields and total household income, that is, the mean, variance (dispersion/variability risk) and skewness (downside risk). Using an endogenous switching regressions model, we find that perception of climate change is a key driver for SRI adoption and impacts primarily the moments of income. Furthermore, the average effect of SRI on variability and skewness are positive. However, the large increase in income variability is not compensated by the increase in skewness (i.e., a reduction in downside risk), which may (at least partly) explain why SRI adoption rate remains low in Tanzania.