Farmer Attitudes toward Improved Agricultural Technology: Willingness to Pay Analysis in Tanzania

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Abstract

With Tanzania's economy being heavily dependent on agricultural production, there is no alternative to increasing agricultural productivity than through yield-increasing technologies such as improved seed and fertilizer. Recent years have seen a surge in the promotion of system based agricultural technologies as part of sustainable intensification of agriculture in developing countries. These initiatives introduce improved technologies that are tailored to farmers' local conditions by demonstrating the technologies in trials with free provision of improved seeds and fertilizers. But it is not clear whether small holder farmers would be willing to pay for these technologies, and what factors determine their informed demand for technologies. The goal of this study is to elicit willingness to pay (WTP) and demand for improved agricultural technologies among farmers using the stated preference experiment. The specific objectives are to investigate the determinants of farmers' demand for improved seed and fertilizer including the role of farmer's attitude toward risk and credit rationing.

As part of a broader research initiative aimed at evaluating Africa RISING (AR) project we conducted a contingent valuation study for hybrid maize seed and local inorganic fertilizer called *Minjingu mazao* in three villages (Long, Sabilo and Seloto that belong to different agro ecologies) in Babati district in Tanzania. In this study area we initiated a field experiment where 400 participants were recruited randomly at the village and sub-village level to attend a field day in June 2013. About half farmers were randomly selected, via public lottery, to receive inputs (*Minjingu mazao* ferlitizer and improved maize seed) via coupon distribution. Also as part of AR program in Tanzania a household level baseline evaluation survey of 810 households was conducted in January-March 2014. This study is based on the combined data from contingent valuation experiment and baseline evaluation household survey in Babati.

WTP was estimated using a dichotomous contingent valuation with follow-up model, and the average WTP was found to be 61.2% higher for hybrid maize seed and 15.4% lower for *Minjingu mazao* fertilizer compared to their average market prices. Education of household head, maize productivity and household wealth were found to influence farmers' likelihood of buying hybrid maize seed positively, whereas farmers risk aversion preference (elicited through experiments with real monetary incentives) had a significant negative influence on WTP for both hybrid seed and *Minjingu mazao* ferlitizer. The study concludes that WTP analysis can not only shed lights on cost-benefit analysis but also on the sustainability of agricultural innovation.

Key words: Willingness to pay, agricultural technological innovation, desired demand, contingent valuation, sustainable innovation