Farmers' Risk Management in Maize Production in Northern Viet Nam: Determinants of Variety Choice and Area Allocation

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Abstract

In Viet Nam, maize has become the second most important crop after rice due to its importance as feed for the country's rapidly growing livestock industry. In the mountainous district of Yen Chau in northwestern Viet Nam, maize is grown by almost all farmers and accounts for 65 % of their total cash income, on the average. Given the price fluctuations and adverse ecological effects observed, this concentration on maize production must be viewed as a relatively risky livelihood strategy. Hereby, the level of risk depends - among others - on the yield potential, yield variability, and input requirements of the maize varieties used. Understanding farmers' decision-making with respect to maize production is a crucial prerequisite to enhancing both its economic and ecological sustainability. Hence, based on data collected in a random sample of 300 households in Yen Chau district, the objectives of this study are to investigate (1) the maize varieties used and their characteristics, (2) determinants of farmers' choice between riskier and less risky varieties, and (3) determinants of the area share allocated to maize. A probit regression model identifies determinants of variety choice, and a subsequent OLS regression identifies factors influencing area allocation, accounting for possible unobserved differences between farmers who grow riskier and less risky maize varieties. Regarding the level of risk involved two maize variety groups can be identified, LVN (less risky) and NK (riskier). The probit model correctly classifies 67 % of NK growers and 95 % of LVN growers, indicating a relatively high level of predictive power. Amongst others, the maize price received in the previous season, literacy of the household head, and access to credit positively influence the choice of the riskier NK varieties, while the recent experience of food shortages and a remote location work towards opting for LVN. The area share allocated to maize is positively influenced mainly by per-capita land availability and the share of upland area, and negatively by the price of urea. Overall, we find that the riskier NK varieties are also attractive to the poorest, presumably risk-averse, tercile of farmers but they are not able to exploit their yield potential.

Keywords: Maize variety choice, probit regression, risk aversion, Viet Nam

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