

ADOPTION OF IMPROVED AGRICULTURAL TECHNOLOGY AND THE OUTPUT OF IRRIGATED RICE FARMERS IN NORTH-WESTERN NIGERIA

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Abstract

Higher yields, income and gross margin are the key indicators of farmers' performance used to measure the adoptability of improved agricultural technology. This study intends to estimate the impact of HYVs adoption on yield and income of irrigated rice farmers and gross margin difference between adopters and non-adopters of tractor service in the North Western Nigeria. Cross sectional data were collected from 564 irrigated rice farmers across Kaduna, Jigawa and Kano States based on Multi-stage sampling technique. Endogenous Switching Regression model is used as major analytical tool to address the potential self-selectivity bias. The results show that adoption of HYVs has positive impact on yields and income of irrigated rice farmers, pointing strong and positive correlation with irrigated rice farmers' yield and income but the effect on non-adopters due to the existence of self-selectivity is lower. The yield-increasing effects and income-increasing effects of adopting HYVs for the adopters are higher than the non-adopters. The cost of adopting tractor service has negative and significant impact on gross margin of irrigated rice farmers, pointing negative correlation with the irrigated rice farmers' gross margin but the negative effect on non-adopters due to self-selectivity as indicated from the estimates of treatment effects is lower. Also, the gross margin-increasing effect for adopters of tractor service is higher, and the gross margin difference between adopters and non-adopters of tractor service is about 1.044. It is concluded that adoption of improved agricultural technology has positive effect on output performance. The study recommends for the need of promoting technology adoption among the non-adopters by making its information accessible to the irrigated rice farmers in the right time.

Keywords: Adoption, Irrigated Rice Farmers, Improved Agricultural Technology, North-Western, Nigeria and Output.