

Estimating Impact Technological Adoption in Farming in Bihar: A Propensity Score Matching Approach

Abstract

Since proposed by Rosenbaum and Rubin (1983) the propensity score matching approach is being used widely to measure counterfactual impact of treatment intervention. The present study is an attempt to delineate the concept of propensity score and use the same to estimate the impact of farmers' adoption of new farming approach of onion farming in Gaya District of Bihar. Training on advanced onion farming offered by a local organization (MicroX Foundation) through a 'farmer-field-school' type approach by engaging external resource persons, and the local farmers self selected them for the training. The study aims to compare impact of the adoption of this new approach on agricultural income of the selected farmers with other farmers from the same locality. The analytical procedure estimate the average treatment effect of the intervention on the agricultural income of the participant farmers has been estimated by using propensity score matching method. The study delineates conceptual background and application of propensity score matching approach and use logistic regression and nearest neighbourhood matching to estimate the impact of the intervention on agriculture income of the training participants. The study provides a framework of estimating counterfactual impact of agricultural extension service and found significant improvement in agricultural income of the farmers who adopted the new technique.