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Total Factor Productivity Growth and Technical Efficiency of Wheat Farms In India: A Stochastic Frontier Analysis

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ABSTRACT

Punjab state, the food basket of India, is facing severe structural problems in crop production sector. From policy point of view it is necessary to find the sources of total factor productivity growth to solve these problems. In this article we analyse the sources of total factor productivity (TFP) growth for a panel data set for a random sample of 300 individual wheat farms in Punjab. The total factor productivity growth is decomposed into technological progress, technical efficiency change and scale efficiency change for better understanding of the sources of TFP growth. Stochastic frontier analysis with the more flexible translog production function is used to determine the production elasticity coefficients of inputs, technological progress, scale efficiency, technical efficiency and the determinants of inefficiency. The mean technical efficiency for the sample farms is 97 percent. The significant determinants of technical inefficiency are education level of household head, farm size and the share of off farm income for a specific farm. Technological progress is the major contributor towards the average TFP growth rate of 8.3 percent. The results imply that more investment in R & D in agriculture sector and better agricultural extension services are required to improve technical efficiency and technological progress.

KEYWORDS Total Factor Productivity Growth; Technical Efficiency; Stochastic Frontier Analysis

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