Technical Efficiency and its Determinants: A Review

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Abstract

Increasing agricultural efficiency among farmers is a key strategy to improve agricultural productivity, production inputs, and social-economic factors are expected to contribute to agricultural growth. However, farmers usually faced several complications including low productivity due to the high transaction cost of accessing inputs. The objective of this review is to summarize the current study to support the farmers in improving the productivity and efficiency of agricultural activities. This review was based on several studies about the technical efficiency of farmers and its determinant that were conducted in developing countries. This study begins by reviewing the production inputs' impact on agricultural production and then reviewing the influencing factors on farmers' technical efficiency. Furthermore, it investigates the weaknesses of several kinds of literature, whereas the previous studies only measured the level of technical efficiency in the general situation without comparison. The findings of this review were average technical efficiency level of the farmers with the Data Envelope Analysis (DEA) method was lower than 1 and the Stochastic Frontier Analysis (SFA) method ranged between 0.11 and 0.91. Nevertheless, the farmers could reduce their quantity of inputs and still produce the same quantity of agricultural output. The determinant of technical efficiency is age, education, farmer experience, and farm size, and one essential factor that affects the technical efficiency is new improved technology. Finally, according to the result, this study would contribute to agricultural policy suggestions, which can improve farming productivity and sustainability by optimizing the technical efficiency level.

Keywords: Data envelopment analysis; Input production; Stochastic frontier analysis; Technical efficiency

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