

Assessing the Technical Efficiency of Organic Rice in Taiwan

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Abstract

Organic rice has become an important economic crop due to increasing awareness of consuming healthy foods and environmental issues. However, organic farmers usually faced several complications including low productivity because of the high transaction cost of accessing inputs. Therefore, the purpose of this study was to measure the technical efficiency change and then decompose the change into several levels of efficiency. The data was collected from February 2020 until November 2021 from three cropping seasons containing 241 observations from 18 regions in Taiwan. Stochastic production frontiers with the translog functional model were used to analyze the technical efficiency (TE) level. The results indicated that the average TE for the whole sample of 78.87% and the average TE change of - 0.012% per season. Moreover, the findings also revealed that fertilizer and material costs had negatively and significantly impacted productivity. By contrast, years of education, labor, and water costs had positively significantly affected productivity growth. This research suggested that additional investments in research and improved technologies could be further promoted to increase organic rice productivity and the level of farmers' efficiency.

Keywords: organic rice productivity, stochastic production frontier, technical efficiency change



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