



Technical Efficiency and Factors Influencing Technical Efficiency of Agricultural Cooperatives in Nonthaburi Province of Thailand

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Abstract

For over 60 years, Nonthaburi province has been one of the main agricultural production areas in Thailand. Agricultural Cooperatives also play a key role in farmer's assembly. Because of externality, the number of agricultural cooperatives in Nonthaburi province has been declined. Nowadays, there are only 8 agricultural cooperatives that still perform their own business. Two research objectives were set as 1) to analyze the technical efficiency of agricultural cooperatives and 2) to analyze factors influencing the technical efficiency of agricultural cooperatives in the Nonthaburi province, Thailand. The population numbers of agricultural cooperatives were considered as 8 individuals. The purposive technique was applied as the sampling technique. With the purposive sampling of agricultural cooperatives who had their financial status and business operational performance of positive numbers and performed continuously, it turned out of 5 agricultural cooperatives as sample size. The time-series data were collected from 1990 to 2021 while the cross-sectional data were collected from 5 cooperatives. So, the total number of observations was clarified as 180 observations. The technical efficiency analysis was applying the 3-state Data Envelopment Analysis (3-stage DEA). While the factors influencing the technical efficiency were utilized the Ordered Probit Model.

Findings were: 1) all 4 out of 5 agricultural cooperatives operated their own business with Technical efficiency, and 2) the factors that influenced the cooperatives' technical efficiency were cooperatives' capitals and operating capitals. Both cooperatives and members would have the managing strategy to meet the technical efficiency include the plans for a brush up their capitals and increase their operating capitals. Also, they would encourage members to save more since members' saving is the main source of funding for their investment.

Keywords: *Technical Efficiency, Agricultural Cooperatives, DEA, Ordered Probit Model.*