

COST EFFICIENCY ANALYSIS OF SELECTED PADDY PRODUCING REGIONS IN SRI LANKA

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Abstract

The objective of this study is to use data envelopment analysis in measuring and analysing the cost efficiency and efficiency scores of seven selected paddy producing regions for the period 2002- 2008 in Sri Lanka. Cost efficiency considered the most important type of efficiency that regions can achieve it by finding a combination of inputs which enable them to produce the desired outputs at minimum cost. Allocative efficiency refers to the choosing of inputs to the specific level of output at specific level of input prices, at minimum cost. The panel data including quantities of paddy yield, labour, fertilizer and prices of labour and fertilizer were collected from annual reports of cost of cultivation and the data envelopment analysis was applied to estimate allocative and cost efficiency of paddy production. The above variables were used in the constant returns to scale with input-orientated data envelopment model to calculate both efficiencies using DEAP Version 2.1. Due to the non-availability of prices for area of sown land, the cost efficiency measured without area of sown land. Further, to analyse the potential improvements of paddy production with area of sown land, frontier analyst was applied for each region in the sample. The results show that over the period, most of the paddy production regions are inefficient and the regions, Anuradhapura, Ampara and Hambantota have achieved cost efficiency and the lowest level of inefficient achieved at 0.465 in 2002. Results of the frontier analyst also show that most of the years, the above three regions were achieved efficient and Kurunegala had the lowest efficiency in 2008. In the case of Kurunegala if the labour input had been reduced by 62%, fertilizer had been reduced by 29% and area of sown land had been reduced by 55%, productivity of paddy could have been achieved 100% in 2008.

Key words: Allocative efficiency, Cost efficiency, Technical efficiency.