

Rice farms efficiency and factors affecting the efficiency in MADA Malaysia

ABSTRACT

Malaysian rice farming is still constrained by the low productivity despite many supports and subsidies that have been enacted to this sector. The difficulties in improving the yield is potentially caused by the unintensified use of inputs due to the inefficient management on the rice farm. Thus this study aims to measure the rice farm efficiency and factors affecting that efficiency. Two stage analysis was adopted whereas in the first stage data envelopment analysis was used and corrected by the bootstrap method. Then in the second stage a Tobit model was employed to estimate factors affecting the efficiency. On average, the technical efficiency score estimated by DEA was about 0.6375 and implied with a given amount of inputs, the rice farms could increase its output by 57.31%. However, after correcting for the bias, the technical efficiency score was about 0.5366 and indicated that rice farms in MADA could increase its output at 86.35%. Further, by considering the lower and the higher bounds of efficiency scores, on the average, the rice farms could increase its output in the range from 20.13-99.12 with 95% confidence interval. Three factors that significantly affect the rice farm efficiency were the household size, land ownership and secondary level of education of sampled farmers. The positive significant effect of household size implied that farms with more household member was appeared to be more efficiently manage their production. Then, the negative effect of land ownership to the efficiency implied farmers who had the own land were tend to be more inefficient than those who rent the land. It was related to their motivation on the production whereas tenant farmers were more motivated to improve their production and get higher income so that they strived to manage the production in a professional manner and receptive to new technology as well. Further, farmers with secondary education level more efficiently managed the rice farm than others because of their passion for managing their production.

Keyword: Rice farms; Technical efficiency; Scale efficiency; Bootstrap DEA