Estimating the Technical Efficiency of Small-scale Inland Fisheries: A Case from Vavunikulam Tank

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The Fisheries sector is categorized into three subsectors i.e. coastal, offshore, and inlandfisheries. Inland fisheries are defined as exploiting fishery resources from the inland water environment. Vavunikulam is one of the largest tanks in the Mullaitivu district, Northern Province, Sri Lanka. It has huge potential for inland fishing. This study aims todetermine the level of technical efficiency and identify factors affecting the technical efficiency of small-scale fishing households. This study also focuses on the role of the National Aquaculture Development Authority of Sri Lanka (NAQDA) and the role of thefishing society in this study area. Data on 50 fishermen were collected from Ampalpuramvillage by using well-structured questionnaires. A Cobb-Douglas stochastic frontier approach with an inefficiency model was used to estimate the technical efficiency and identify the determinants of the efficiency of fishermen. The maximum likelihood parameter estimates showed that fishing output was positively and significantly influenced by the number of fishing gear and duration of fishing. It implies that there is a possibility to increase fish output level if fishermen can efficiently use inputs. The results revealed that 69.80% of the deviation from fishing output was due to technical inefficiency. The estimated mean of technical efficiency of the sample fishermen was about to 86%, which means there is a possibility to increase the level of technical efficiency by 14% through efficiently utilizing the existing resources. Further results showed that education level, experience, and income from other sources were found to have a negative and significant effect on technical inefficiency, and age was found to have a positive and significant effect on technical inefficiency of fishing output. Therefore, government and policymakers should take necessary actions and foster policies to improve the technical efficiency of fishermen through providing formal as well as informal education, training programs, and credit facilities.

Keywords: Catch-rate, Inefficiency model, Inland fisheries, Stochastic frontier analysis,Technical efficiency

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