

Technical Efficiency of Small Scale Vegetable Growers in Sri Lanka: A Comparison of Parametric and Non-parametric Approach

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Many researchers have depicted that most of the up-country vegetable growers have failed to capture the technical efficiency due to poor managerial ability of economic resources. It is an undeniable fact that the majority of the up-country vegetable farmers are characterized by poor socio-economic status. This paper investigates the resource use characteristics, profitability and technical efficiency of vegetable farming in a sample of vegetable farmers selected from 12 Grama Niladhary (G.N) divisions in Nuwaraeliya District. The experiment sites were randomly selected based on the list of the GN division in Nuwaraeliya Divisional Secretariat division and the empirical study was carried out based on a sample of 243 small scale vegetable farmers. This paper uses both parametric and non-parametric approaches to estimate the technical efficiencies of vegetable farming at production and marketing stages under rainfed condition in the up-country of Sri Lanka. The parametric approach was adopted under stochastic frontier production function with Cobb-Douglas form. The non-parametric approach in this paper was based on the data envelopment analysis (DEA) technique in order to estimate the technical efficiency of vegetable farming. Both parametric and non-parametric approaches have shown that the average technical efficiency estimates were not at potential level, and there would be a large room for increasing productivity through improving technical efficiency of vegetable farming. Under parametric approach, the average technical efficiency estimates at production stage and marketing stage were 74.62 percent and 67.04 percent, respectively under parametric and non-parametric approach. Under non-parametric approach, the average technical efficiency was 70.86 percent and 62.84 percent at production and marketing stages respectively. To examine the consistency of the estimates from two approaches under different specifications, the researcher applied

independent sample t test, and the results show that the parametric and non-parametric approaches provide different estimates due to measurement and specification errors.

Keywords: Vegetable Farming; Profitability; Technical Efficiency; Parametric and Non-parametric Approach