

Economic Efficiency in the Tea Estate Sector: A Case Study from Dimbula Tea Region

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Being the main agricultural export crop for around 150 years, tea contributes to the Sri Lankan economy in a significant manner. In the recent past, Sri Lanka's tea production and exports show a declining trend. Making matters worse, the average price has fallen below the average cost of production causing low profits. Amidst these, the tea estate sector faces many additional challenges in the form of the high cost of production, scarcity of labor, and maintenance issues. However, despite having the aforementioned constraints, some estates perform well while others are not. Hence, this study aims to analyse variability in the economic efficiency and determinants of revenue using a stochastic revenue frontier. To estimate the revenue function, panel data were collected from seven tea estates in the Dimbula region, which were selected by the purposively based on the availability of data and the access for the required data. Green leaf amount, Net Sale Average (NSA), labor days, chemical cost, and fertilizer cost were extracted from estate monthly accounts from 2005 to 2018. To estimate the stochastic revenue frontier, Battese, and Coelli model (1988) was used to capture the firm specific time invariant inefficiency. Results showed a mature area extent, NSA and labor days has a positive significant impact on revenue. The largest impact on revenue is given by the increase in extent as expected. A 1% increase in extent increases revenue by 1.4%. Similarly, a 1% increase in NSA can increase the revenue by 0.76% and a similar increase in labor can increase the revenue by 0.07%. Selected tea estates in the Dimbula region have a mean efficiency of 84%, which implies that still efficiency can be improved by 16% on average. Even though the mean is 84%, the maximum is 96.92% and the minimum is 68% showing that the inefficiency range is 31.97% to 3.08%. Therefore, it is clear that some estates have not achieved even the mean level of efficiency and a considerable amount of potential revenue is lost due to inefficiency.

Keywords: Economic efficiency, Revenue function, Stochastic frontier, Tea estate sector

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