MODELLING AND FORECASTING THE COST OF TEA PRODUCTION, TEA YIELD, AND EXPORT QUANTITIES IN SRI LANKA

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ABSTRACT

Tea yield plays an important role in Sri Lanka's economy, contributing significantly to employment, foreign exchange earnings, and GDP. The study aims to develop a model for forecasting the cost of tea production, yield, and export volumes to make informed decisions for policymakers, producers, and investors. This study employs a quantitative research approach, utilizing statistical analysis models to predict the forecast values. Mainly, this study was oriented with secondary data; therefore, all data were collected from Department of Census Statistics, Sri Lanka Custom Headquarters annual reports, Sri Lanka Tea Board annual reports, and Forbes & Walker tea brokers annual statistical reports. The ARIMA analysis was conducted on the RStudio programming application. A stationary test was conducted to confirm the stationary level and trend through hypothesis acceptance. After that, autocorrelation and partial autocorrelation test, residual test and finally fit the model and future values were predicted. Regarding the analysis, the yield-predicted values show nominal fluctuations and export quantities, and the cost of tea production (Rs. per kg) shows no any fluctuations in forecasted values. Due to the circumstances fitted model gives 95.93 %, 95.11 %, and 96.19 % accuracy value for tea yield quantity, cost of tea production, and export volume, respectively. Regarding the analysis, the government needs to sort out some factors' effects (tea quality, weather patterns, etc) and give more consideration to the tea exports to earn foreign exchange and gain more global demand for future periods. This study suggests that targeted to improve positive GDP difference through tea yield in the future, and this results from more impact for the tea workers and their wage improvement and introduces the new technologies for tea yield and processing in future Sri Lanka tea yield trend.

Keywords: ARIMA, export volumes, forecasted value, tea quality, tea yield quantity

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