

## Future Prediction and Analysis of Tea Export in Sri Lanka in Terms of Influencing Factors

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According to figures from the Sri Lanka Tea Board, the amount of tea exported fluctuates greatly depending on the time of the year. Analyzing and predicting tea export based on the type of tea exported would be highly beneficial for various stakeholders in the industry. Investigating the relationship between tea export and important factors aids in identifying the elements that contribute to fluctuations in tea export volume. Accordingly, this study focused on the collection of data specific to the future prediction and analysis of tea export in Sri Lanka in terms of influencing factors and to analyze them based on a thorough identification of existing research gaps. Monthly tea export data over the past ten years, as well as prices and volumes of various tea types over that time period were used in the study. These historical data were used to assess and determine the significance of the correlation between the key factors and their variation patterns in order to forecast tea export volume. This study used a variety of prediction and forecasting methods with the Multilayer Perceptron, a type of feedforward Artificial Neural Network emerged as one of the most effective methods for developing accurate prediction models. The accuracy of the results was tested and evaluated using the confusion matrix. The prediction model yielded an accuracy of 98% with a mean absolute error of 0.02%, root mean squared error of 0.12%, 0.985 precision, and 0.984 for both Recall and F-Measure. The study further demonstrated that the identified factors have a satisfactory level of correlation in determining the tea export in Sri Lanka, with the year, month, and tea type having the highest influence.

Keywords: Machine Learning, Sri Lankan Economy, Tea Export, Tea Types