

Forecasting natural rubber (NR) production in Sri Lanka

Natural Rubber (NR) is a traditional export commodity in Sri Lankan economy. The Sri Lanka's share of NR exports account for nearly 1.82% of the world NR exports. Therefore, Sri Lanka has to act as a 'price taker' in the global context. However, it is important to study the behavior and future projections of NR production, which depends on various economic factors. This information is useful to policy makers to explore the areas to be addressed to increase productivity.

This study was carried out to identify the behavioral patterns in NR production; trend, seasonals and cycles and subsequently, to select the best technique to predict NR production. Monthly NR production data for 19 years (1980-1998) were collected for the analysis. Time series statistical methods were used to isolate trend, seasonal and cyclic components. Three forecasting approaches were employed, namely; trend fitting, decomposition and ARIMA approach.

A declining trend was observed in NR production of 176.4 MT per year. The highest seasonal index was observed in March (109.8) followed by December (104.8) and January (103.5). No distinct cycles were observed in the data series. Trend fitting method gave the lowest Mean Absolute Percentage Error [MAPE] of 8.2, but the residual autocorrelations showed unaccounted seasonally for monthly data. Hence, this method can be successfully used for annual predictions. Decomposition and ARIMA methods gave MAPE values of 12.8 and 11.1 respectively, with non-significant residual autocorrelations with random distribution. Therefore, both these methods can be used to forecast monthly NR production with sufficient accuracy.