

**119/B**

**A time series analysis of coconut prices: seasonal variation, trends and parity**

L M Abeywickrama

*Department of Agricultural Economics, University of Ruhuna, Mapalana, Kamburupitiya,*

Prices of coconut and allied products were remarkably increased in the recent past and volatility of coconut prices is a common phenomenon. As the production of coconut has not been declined (Central Bank, 2007) substantially during last decade, finding the factors behind the price increases and price volatility is important for policy formulation. Therefore, the objective of this study is to analyze price behavior of coconut and allied products.

Data required for the study were extracted from monthly bulletins of Coconut Development Authority (CDA), Central Bank Publications and the data bank of Asian Pacific Coconut Community (APCC).

Published data of coconut prices for the period from 1974 to 2006 were used for the analysis. If the data series are non-stationary, first order differences were taken. If the data series is still non-stationary, first order differences were taken in log-transformed series. Stationary data series were fitted to six conventional time series models, viz; General decomposition method, Moving average method, Winter's method, Single exponential smoothing method, Double exponential smoothing method, and Auto regressive moving average (ARIMA) method. Mean Absolute Percentage Error (MAPE), Mean Absolute Deviation (MAD), Mean Squared Deviation (MSD) were used to test the model adequacy and accuracy. In order to find the seasonal (monthly) indices, the de-trended data series was smoothed by using a centered moving average of order twelve. After the moving average is obtained, it is subtracted from the de-trended data to obtain raw seasonal values. Within each seasonal period, the median values of the raw seasonal values were calculated. These medians make up the seasonal indices.

The results revealed that the ARIMA & exponential methods are better than other models to predict prices of coconut and coconut products in Sri Lanka. Seasonal indices of retail prices of fresh coconut revealed that high prices from December to March is normal while lower prices in July and August. However parity price analysis revealed that rate of increasing real prices of coconut is higher than that of other necessary food items such as rice reflecting relative scarcity or some other trends which should be considered in further research.

\*abey@agecon.ruh.ac.lk

Tel: 077 3229011