F-06: Behaviour of natural rubber prices in the Colombo Market

B W Wijesuriya, R O Thattil, I N Samarappuli
(*Rubber Research Institute of Sri Lanka*)

A knowledge of the behaviour of prices of any commodity is a prerequisite in the analysis of price instability. Rubber being a primary commodity, its price instability has been a common phenomenon observed in the long history of the Sri Lankan economy. Fluctuations in Natural Rubber (NR) prices affect the economic stability of both producers and consumers. Little information, however is available on behavioural changes in NR prices in the local market. Hence, this study attempts to identify the components in time series; trends, seasons and cycles in quarterly prices of different NR grades in the Colombo auction.

The behaviour of quarterly NR prices in the Colombo market were studied for 3 different NR grades; *viz* RSS-1, latex crepe and sole crepe for the period 1979-1993. Decomposition methods are among the oldest forecasting approaches, evolved in the early part of the 19th century. These methods have been widely used and continuously being modified as a statistical tool for time series analysis. The methodology suggested by Makridakis *et.al,* (1983) was employed in decomposing seasons, trends and cycles in quarterly NR prices. The auto correlations, partial auto correlations and cross correlations among different grades were computed with the aid of the statistical package, SPSS ver 4.0.

An increasing trend was observed for all grades in NR prices since nominal prices were used in the analysis (*Fig 1*). Trend component dominated over cycles and seasonals and was confirmed by the auto correlations which approach zero only at very high lags. Further analysis on NR prices were conducted after transformation into stationary series.

Analysis on auto correlations suggest that short term correlations exist in the series of NR prices for all grades. Cross correlations between the grades indicated a direct positive relationship (r_k=0.869, $p<0.001$) between RSS and Sole crepe grades. Moreover, the cross correlations between prices of latex crepe vs RSS and sole crepe were highest at first lag, with r_k values of 0.808 and 0.764 ($p<0.001$) respectively.

The seasonal effect in RSS and latex crepe grades followed a similar sequence; while a different behaviour was observed for sole crepe grades as in *Figure 2*. The cycles were similar for RSS and sole crepe grades throughout the period studied. All 3 types followed the same sequence after 1988, with larger amplitudes in cycles of latex crepe (*Fig 3*).

An upward trend in nominal prices was observed for NR grades after 1979 in the Colombo market which dominated the cyclic and seasonal variations. Short term correlations exist between prices for each grade signifying that an observation above (below) the mean tends to be followed by one or more further observations above (below) the mean.

Prices of RSS and Sole crepe grades behaved similarly and were positively related. Larger fluctuations in prices of latex crepe were observed when compared with other grades. This suggests that the manufacture of RSS is more suitable for low income groups considering the stability of prices compared to latex crepe.

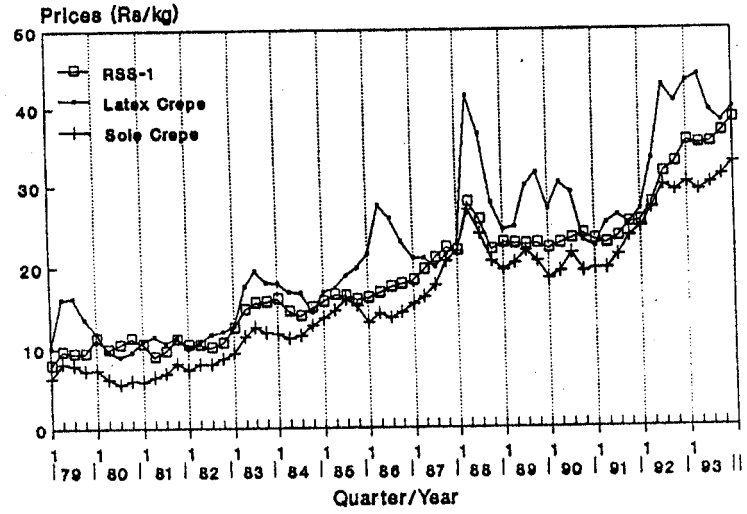

Fig I Variation in Quarterly NR prices (1979-1993)

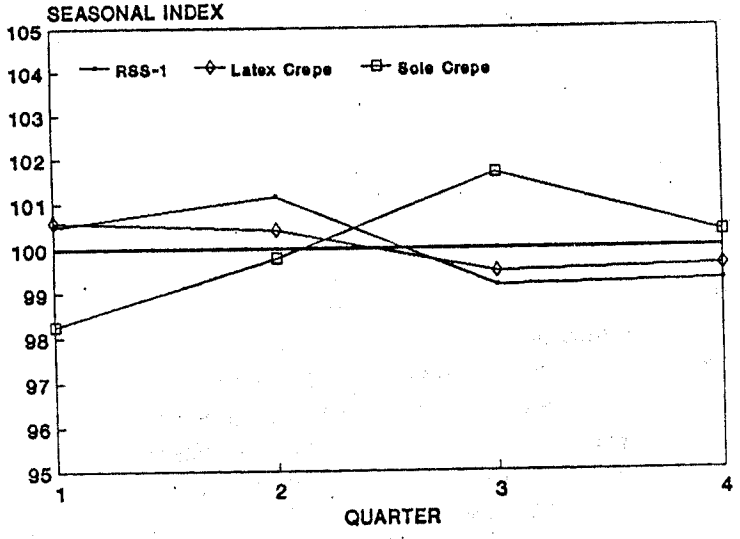

Fig II Average seasonal variation of NR prices (1979-1993

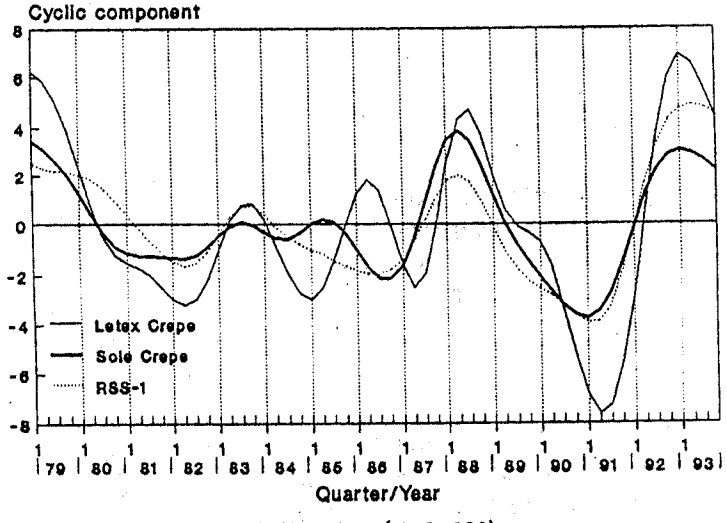

Fig III Cyclic variation in NR prices (1979-1993)