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SEASONAL FLUCTUATIONS IN THE PRICE OF NATURAL RUBBER IN INDIA

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The paper analyses the seasonal variations in rubber prices. The analysis showed that the seasonal index was the highest in July and the lowest in December. Production of rubber showed marked seasonality. The analysis of price in relation to production and consumption showed that seasonality in prices was not much pronounced during months in which production change was predominant, which in turn point to the possibility of oligopsony in the buying market. During the peak production period, consumption was found to fall resulting in low prices. This necessitates the need for buffer stock operations so as to buy and store excess supplies and hold them off the market in times of falling prices and release them when the prices rise. The producer is benefited by stabilisation of his income and the manufacturer through an assured supply of raw material.

Key words – Natural Rubber Prices, Natural Rubber Production, Natural Rubber Stock, Natural Rubber Consumption, Seasonal Fluctuations in Rubber Prices, Oligopsony.

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INTRODUCTION

Prices perform the dual function of allocation and rationing. It serves as a guide to the entrepreneur in the optimum allocation of scarce resources among the various production activities and rubber prices may be no exception to this rule. Studies on the price responsiveness of farmers in developing countries showed that they also responded positively to changes in prices like their counterparts in the developed countries. Umadevi (1977) and Ipe (1986) in their studies on the supply response of Indian natural rubber also got positive elasticities with respect to price. Being an agricultural produce characterised by seasonalities in production, prices of natural rubber may also show intra-year variations. The monthly production, consumption and stocks of natural rubber may also affect the prices. The relationships of prices with the above variables may also indicate the nature of competition and thus the market structure. It may, therefore, be useful to probe the structure of rubber prices in India.

The objectives of the study were:

* To analyse the seasonal fluctuations in prices of natural rubber over the period — 1968-69 to 1983-84.

* To examine the relationships if any, of prices to the variables like production, consumption and stocks of natural rubber with dealers and manufacturers.

MATERIALS AND METHODS

The secondary data published by the Rubber Board (1983) were used in the present study.

The seasonalities in prices and the related variables were analysed by working out the seasonal indices. The seasonal indices were

worked out by the classical decomposition methods — the ratio to trend method — assuming a multiplicative time-series model. Thus the monthly observations on a variable may be depicted as

$MO_t = T.S.R.$

Where MO_t = the monthly observation on the relevant variable in time period 't'.

T = the trend factor

S = the seasonal component

R = the random white noise.

The trend was eliminated by dividing the original series by a 12– month moving average and the random factors by averaging. The residual values depict the seasonalities in the data.

RESULTS AND DISCUSSION

(1) *Seasonal indices of prices of natural rubber:*

Seasonal indices of prices of natural rubber worked out by the classical decomposition method are presented in Table 1.

Table 1. **Seasonal indices of prices of natural rubber in India (1968-69 to 1983-84)**

Month	Seasonal index	Adjusted seasonal index
April	103.73	101.11
May	105.90	103.23
June	106.26	103.58
July	107.86	105.14
August	106.21	103.53
September	103.67	101.06
October	97.95	95.48
November	97.87	95.40
December	97.51	95.05
January	100.80	98.26
February	101.51	98.95
March	101.78	99.21
Total	1231.05	1200.00
Mean	102.59	100.00

The seasonal index of rubber prices ranged from 95.05 in December to 105.14 in July. The seasonal indices were low for the months of October, November and December (around 95) which coincide with the seasonal peak in rubber production. Similarly the indices were high for the July-August period. However, the difference between the maximum and the minimum was small — around 10.

(2) *Inter relationships among prices, production, consumption and stocks of natural rubber :*

The inter relationships among the above variables were analysed by working out the corresponding seasonal indices. The seasonal indices of prices, production, consumption and stocks are presented in Fig. 1.

PRICE IN RELATION TO PRODUCTION

As a commercial crop, with the whole produce being marketed (money economy), monthly production of rubber represents the total market supply. So production will have a direct impact on prices.

Contrary to prices, production showed marked seasonality, the lowest being in February. This may be due to the low production during the month consequent to tapping rest.

Production was the highest during December (157.61). The seasonal indices worked out showed that the peak period in rubber production was September to January and the lean period was February to August. A comparison of the seasonal indices of production and prices showed that during the peak production period, prices tend to fall and during the lean period prices tend to rise establishing a negative relationship between the two. Notably when the seasonal index of production was the highest in December (157.61), the seasonal index of price also

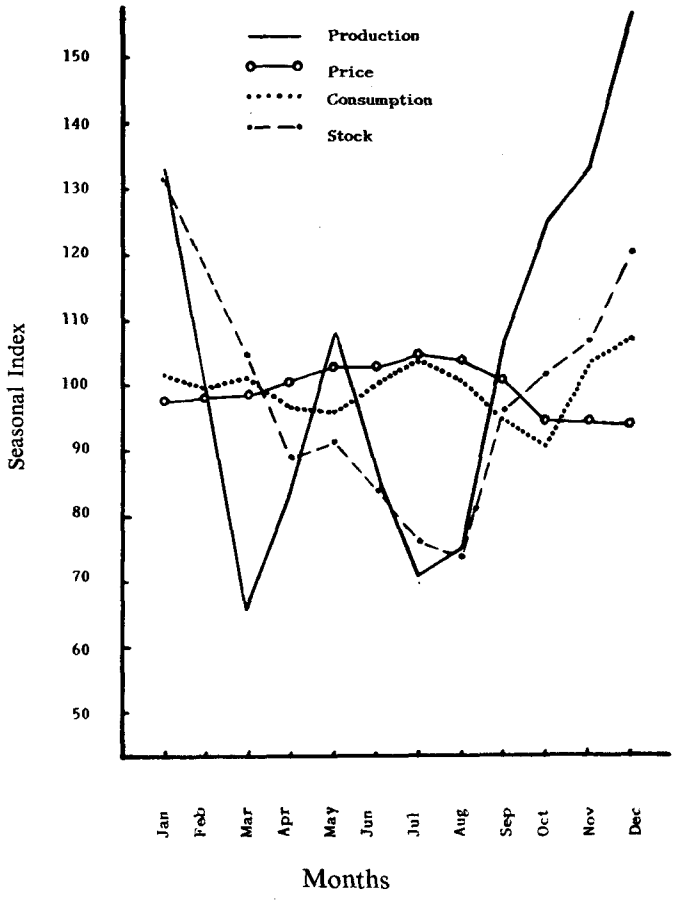

Figure 1. Seasonal Indices of price, Prodution, Stock and Consumption of Natural Rubber

touched the lowest figure (95.05). But when the seasonal index of production reached the lowest figure in February, the seasonal index of price did not touch the highest figure. (The seasonal index of price was the highest—105.14 in July). Thus the analysis showed that when production was the highest, prices touched the lowest figure but not the reverse. To put it differently, an increase in production resulted in a decrease in prices as in a perfect competitive model, but a decrease in production did not result in a corresponding increase in prices. It shows that seasonality in prices is not much pronounced in months in which production change is predominant. Thus the impact of production on prices was mild and subdued in one direction. This may be due to imperfections, possibly oligopsony in the buying market as observed by Wharton (1962) in the Malaysian rubber market. George (1978) and Ipe (1986) also suspected oligopsony (possibly at higher levels of the vertical market) in the Indian natural rubber market.

PRICE IN RELATION TO CONSUMPTION

The seasonal indices of consumption ranged between 91.08 in October and 107.88 in December. Thus when the seasonal demand for rubber fell in October, the price also declined, conforming the hypothesis that a fall in demand results in a fall in price. But when the seasonal demand rose to 107.88 (highest) in December, the seasonal index of price fell to 95.05 (lowest). A rise in seasonal demand evoked little response in respect of price. This might be partly due to the oligopolistic structure wherein a few buyers can influence prices through their purchase and inventory adjustments and partly due to the increase in seasonal production. Though the monthly import figures did not show any seasonality, it may also affect the prices. Thus changes in prices of natural rubber originate from the demand side rather than from the supply side. This necessitates the need to prevent or reduce the problem of price fluctuations.

The changes in demand was found to occur independently of the supply. While the production picked up from the month of August and reached maximum in December, consumption started declining from July, reached the lowest level in October and picked up again to reach the peak level in December.

PRICE IN RELATION TO STOCKS

Stock adjustments and speculation are important sources of profit in the trading of durable commodities. The seasonal indices of stocks worked out showed that it declined from May and reached the lowest level in August and picked up again in October to reach the peak level in January. Thus when the stocks were found to increase, the prices tended to decline. Similarly from April to August, stocks were found to be low and the prices tended to rise establishing an inverse relationship between the two. When the price reached the lowest level in December, there was an accumulation of stocks and it reached the peak level in January. Similarly when the price reached the highest level in July, the stocks began to deplete and reached the lowest level in August. However, it may be noted that the prices and stocks are simultaneously determined in the market. This shows the adjustments in inventory by the large dealers, manufacturers and estates in response to changes in prices.

While the production and stocks showed marked seasonality, it was not pronounced in the case of price and consumption. Indices of production and stocks showed similar patterns with falling stocks during lean production period and vice-versa. The curves depicting seasonal demand and price showed similar patterns.

The analysis of seasonal variations in prices showed that the seasonal index was the highest in July and the lowest in December.

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