

SEASONAL FLUCTUATIONS IN THE PRICES OF COCONUT, COPRA AND COCONUT OIL IN KERALA*

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ABSTRACT

Long term movements in the prices of coconut products are explained to a large extent by the trends in the imports of copra and coconut oil. An attempt has been made here to study the seasonal fluctuations in the prices of coconut, copra and coconut oil. Seasonal indices for coconut oil prices were found to be influenced by the availability of oil in the market, and those for coconut by the demand from copra makers which in turn depended on the pattern of rainfall. The influence of supply factors on the price of coconut was negligible. With increase in prices a shift in the pattern of variation was noticed in the case of coconut. The amplitude of the fluctuations had increased in all cases. Its adverse effect on the small cultivator has been discussed.

INTRODUCTION

With 6.7 lakh hectares under coconut, Kerala accounts for nearly two-thirds of the area under the crop in the country. The estimated number of coconut holdings in the state is more than 30 lakhs and 90 per cent of these holdings is one ha or less in size. According to a survey conducted during 1959-66, the cultivating households were selling 78 per cent of their produce in the form of raw nut itself, after retaining about 18 per cent for home consumption (Anon., 1963, 1966 and 1967). Similarly, coconut and coconut oil are used in almost every household in the state for culinary and toiletry purposes. Therefore, the prices received by the cultivators as well as those paid by the consumers are of utmost importance. The long-term movements in the prices of coconut products are explained to a large extent by the trends in the imports of these products (Mathew, 1978). Seasonal variations in the prices of coconut, copra and coconut oil are presented in this paper.

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MATERIALS AND METHODS

Month-wise data available from the Directorate of Economics and Statistics, Trivandrum on the farm price and wholesale price of coconut, copra and coconut oil was made use of for this study. The price data of copra was available from 1961 only. In the other cases, data from 1958 onwards was made use of. The wholesale prices of coconut and copra were collected from Alleppey market, and those for coconut oil from Cochin. The results of this study will apply to the other markets also, since the markets for coconut and coconut products are well integrated. In the case of farm, prices, published data were available on district basis only, and hence the mean for the state as a whole was used for this study. For the estimation of seasonal indices, a multiplicative model ($O = T \times S \times C \times I$, where O represents the original data, T the trend, S the seasonal variation, C the cyclical variation, and I the irregular component) was assumed.

RESULTS AND DISCUSSION

Seasonal indices calculated for the farm price of coconut and wholesale prices of coconut, copra and coconut oil, are presented in Table 1. Farm price of coconut was very high during November to February and low during June to September. The prices were

Table 1. Seasonal Indices for the prices of coconuts, copra and coconut oil

Month	Farm price of coconuts in Kerala	Wholesale price of coconuts at Alleppey	Wholesale price of Copra at Alleppey	Wholesale price of coconut oil at Cochin
January	105.0(5.2)	103.2(4.4)	104.1(7.3)	103.1(7.0)
February	103.9(3.7)	101.8(5.5)	98.9(4.9)	98.8(5.2)
March	101.0(2.7)	98.4(4.5)	92.8(2.7)	93.0(3.2)
April	101.3(4.4)	100.5(4.8)	93.5(3.8)	94.4(4.1)
May	99.4(4.1)	94.9(4.5)	94.0(5.1)	93.8(5.4)
June	95.9(4.8)	98.1(4.3)	94.7(4.8)	95.3(5.1)
July	94.5(5.6)	96.0(7.6)	98.1(5.6)	99.5(5.5)
August	94.5(5.0)	95.0(5.1)	99.0(5.9)	100.7(4.9)
September	96.9(4.7)	98.2(6.9)	102.6(4.4)	104.9(5.3)
October	99.8(5.1)	102.4(7.1)	105.5(5.2)	108.7(6.5)
November	103.6(6.7)	105.8(6.2)	110.0(6.3)	109.7(9.9)
December	104.2(5.9)	105.7(6.9)	106.8(6.7)	98.1(9.5)

Note: Figures in parentheses denote the coefficient of variation (%)

showing a decreasing trend from January onwards, which continued upto July, and thereafter it was steadily increasing. In the case of wholesale price of coconut, the amplitude of the fluctuations was slightly higher compared to the farm prices, the highest price being received in November-December. Though the prices started decreasing from January onwards, the seasonal indices were slightly higher in April and June, compared to that in previous months. An upward trend in the prices was noticed from August onwards. The pattern of variation as well as the amplitude of the fluctuations were very similar in the case of wholesale prices of copra and coconut oil. The lowest prices were registered in March and the highest in November. However, the sudden fall in the prices of coconut oil in December was conspicuous (Fig. 1.)

SEASONAL VARIATION IN THE PRICES OF COCONUT, COPRA AND COCONUT OIL

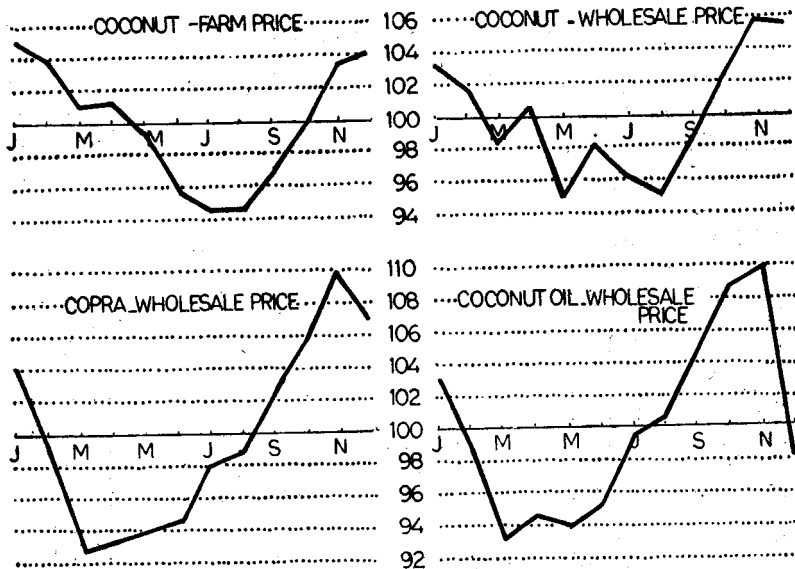


Fig. 1.

Coconuts, though harvested in almost every month, show seasonality in production with about 62 per cent of the nuts harvested during the first six months (January to June) of the year (Table 2).

Table 2. Percentage of nuts harvested and the distribution of rainfall during the different months of the year

Month	% of nuts harvested (1959-66)	Distribution of rainfall (mm) (1958-78)	Month	% of nuts harvested	Distribution of rainfall (mm)
January	9.2	10	July	4.8	727
February	10.3	16	August	6.3	419
March	12.2	37	September	6.2	267
April	11.4	121	October	6.3	275
May	9.9	282	November	6.6	171
June	9.0	566	December	7.8	45

Source of basic data: Directorate of Economics and Statistics, Trivandrum

Eventhough the data in this paper concerns only the period 1959-66, it is presumed that a similar trend can be assumed during any given period. In the case of availability of copra as well as the production of oil, similar trends were observed. The oil mills generally have brisk business during the summer months as they start getting the copra by October-November. Though the arrival of copra stops by May-June, with the onset of monsoon, their stocks run the mills for few more months. Because of the seasonal supply factor, the prices of coconut oil are generally low during the summer months and the early periods of monsoon. During the latter half of the year, the production of coconut and availability of copra are low as reflected in the rise of market price of coconut oil. In the case of copra, though the demand from the oil mills is high during the summer months, the prices remain low due to the greater supply of the commodity. Copra prices show a declining trend from November, with the arrival of copra in the market after the monsoon. Thus, it can be seen that the seasonal variations in the prices of copra and coconut oil are more due to supply factors than due to demand factors.

Kerala receives about 1700 mm rain during the period from June to August (SW monsoon) and another 700 mm during September to November (NE monsoon). The period from May to October accounts for nearly 96 percent of the total annual rainfall. During this period, the seasonal indices for the farm price of coconut is below normal. This is due to the lack of facilities for conversion of nuts

to copra during the monsoon months. From October onwards the wholesale prices of coconut are above normal because of the favourable weather factors, consequent upon heavy demand from copra makers and the low supply position. This rise in price has been reflected in the farm prices from November onwards. Though there is abundant supply of nuts during the first half of the year, the prices have not fallen below normal because of the heavy demand from the copra makers and oil mills. Therefore, it is clear that the seasonality in the prices of coconut is more due to demand factors which in turn depend on the pattern of rainfall. The influence of supply factors on the price of coconut is limited.

The relationship between the production cycle of coconut and pattern of rainfall with seasonal variation in prices can be seen from Table 3. Multiple regression analysis showed that 79 per cent of the variations in the farm price of coconut, 86 per cent and 74 per cent of the variations in the wholesale prices of copra and coconut oil, respectively, are explained by these two variables alone.

Table 3. Seasonal variations in prices in relation to the production cycle of coconuts and pattern of rainfall

	Coefficient of Correlation with	
	Production cycle of coconuts (x_1)	Distribution of rainfall (x_2)
Farm price of coconuts (y_1)	0.4503	-0.8866
Wholesale price of coconuts (y_2)	0.0221	-0.6216
Wholesale price of copra (y_3)	-0.6005	-0.2270
Wholesale price of coconut oil (y_4)	-0.6945	-0.0091
$y_1=105.09 + 0.1518x_1 - 0.0157x_2$ (0.3031) (0.0031)	$(R^2=0.7919)$	
$y_2=110.64 - 0.8270x_1 - 0.0153x_2$ (0.4439) (0.0045)	$(R^2=0.5571)$	
$y_3=127.174 - 2.6896x_1 - 0.0216x_2$ (0.3800) (0.0039)	$(R^2=0.8557)$	
$y_4=124.76 - 2.5222x_1 - 0.0151x_2$ (0.5043) (0.0052)	$(R^2=0.7355)$	

Though the average annual wholesale prices of coconut and coconut oil were showing a rising trend from the mid-50s four

different phases are clearly discernible. The period from 1958-63 (Phase-I) is marked by slow increase in prices. It is followed by a period 1964-70 (Phase-2) of slightly higher rate of increase. Phase-3 (1970-75) is conspicuous for the sudden increase in prices, accompanied by wide fluctuations from year to year, whereas during the period following this (1976-81; Phase-4) the prices were increasing at a very fast rate. Seasonal indices computed for these commodities separately for the different periods (Table-4) showed that with increase in prices, the amplitude of the fluctuations has also increased. This was more pronounced in the case of wholesale prices of all the three commodities. The range of values for the wholesale prices of coconut was only 7.8 points during Phase-1 and it steadily increased to 17.6 in Phase-4. During the first phase, the farm price of coconut was maximum during February, whereas in the subsequent phases the maximum was in January or earlier. During the earlier phases, though the decline in prices generally started during January-February only, in Phase-4 it was from as early as November. Similarly, the prices were generally below normal during June to October, compared to the low prices from March onwards in Phase-4. This shifting trend in the indices as well as the increase in the fluctuations are against the interest of the cultivators, majority of whom are small farmers who resort to distress sales. The average seasonal index for the farm price as well as the wholesale price of coconut during the peak period of production (January to June) accounting for nearly two-thirds of the annual production) were 102.3 and 100.5 respectively during Phase-1 and it steadily declined to 98.9 and 95.7 in Phase-4. It is true that the price index has shown an increase during the lean periods of production, but only the big farmers who can store the nuts from the first half of the year can reap benefits from this kind of price structure.

In the case of copra and coconut oil also, the amplitude of the fluctuations was found to increase with increase in prices. The range of variation was around 23 points in Phase-4, compared to about 14 points two decades ago. With the increase in prices, a further depression was noticed during March-May, when there was abundant supply of oil and a further upward rise in prices during October-November when fresh stock of oil just started arriving. Such a situation only favours the traders with sound financial backing.

Table 4. Seasonal indices for the prices of coconuts, copra and coconut oil in the different phases

Period	January	February	March	April	May	June	July	August	September	October	November	December
a) Farm price of coconuts in Kerala												
1958-63	104.4	105.4	102.8	102.7	100.9	97.7	95.1	93.9	95.6	99.1	101.1	101.3
1964-69	105.2	103.8	101.8	103.1	99.9	94.3	93.3	94.1	96.5	98.7	104.1	105.2
1970-75	106.1	104.1	100.7	102.1	101.0	96.9	94.3	94.4	95.1	98.7	102.3	104.3
1976-81	104.5	102.3	98.7	97.2	95.8	94.6	95.3	95.7	100.5	102.8	107.0	105.6
b) Wholesale price of coconuts at Alleppey												
1958-63	101.2	102.1	100.6	99.8	100.3	98.8	95.4	95.4	97.3	102.1	103.8	103.2
1964-69	101.4	102.9	101.6	104.7	100.9	98.1	92.5	94.5	97.2	98.6	103.2	104.4
1970-75	107.9	105.8	97.0	99.9	98.8	98.0	96.6	91.6	93.3	100.7	104.6	105.8
1976-81	100.3	94.9	93.3	95.7	94.2	96.0	98.5	97.3	104.1	107.1	110.9	107.7
c) Wholesale price of copra at Alleppey												
1961-63	103.7	101.2	94.3	93.5	96.6	96.3	97.3	99.7	103.3	104.7	107.2	102.1
1964-69	103.9	98.4	93.2	94.5	93.6	94.1	97.7	99.9	102.5	105.8	109.1	107.3
1970-75	105.5	98.6	93.2	94.1	95.6	95.6	98.7	99.4	99.9	103.3	109.2	106.9
1976-81	102.9	98.6	91.2	91.8	91.8	93.5	97.9	97.1	105.4	107.9	113.4	108.5
d) Wholesale price of coconut oil at Cochin												
1958-63	101.1	100.7	96.2	95.1	96.5	97.4	99.2	101.9	101.9	104.8	109.4	97.9
1964-69	103.2	98.8	93.4	95.2	92.9	94.1	100.7	102.0	105.5	110.2	109.4	94.6
1970-75	105.0	97.6	92.2	94.0	94.9	95.8	99.3	99.9	104.7	110.1	107.0	99.5
1976-81	102.4	98.1	90.5	93.2	90.8	93.9	98.4	101.2	107.5	109.5	113.9	100.6

It is reasonable to assume that the fluctuations observed in the case of these commodities could be the direct effects of the inflation which has been observed during this period. To amplify further, the price trend and the wholesale price indices have been on the increase from the early '60s, but as in the case of other commodities, in coconut also, the increased inflation rate has affected the purchasing power of the consumer and not the selling power of the producer, which is apparent from the near stable/marginal differences in farm prices. From the above analysis it follows that the full benefits of the rise in prices have not reached the ordinary coconut cultivators.

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