A STUDY ON THE RELATIONSHIP BETWEEN PRICES OF LAC AND QUANTITY EXPORTED

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Introduction

Lac is a unique natural resin. It is produced and exported by two countries namely, India and Thailand. About 85% of the annual production in this country is exported. Lac in its finished form finds use in a number of industries as an intermediate product. Its consumption depends on the level and type of industrial development. Industrially advanced countries like U.S.A., U.K., West Germany, U.S.S.R etc use lac in larg quantities (about 61.65%). During the past several years, however, there has been a gradual drop in the world demand for lac. The largest single factor which is responsible for such decline in the demand for Indian Lac is the wide and violent fluctuation in prices. For example during the last 20 years the prices of Shellac Lamon-I varied between Rs. 2.30 to Rs. 93.00 per kg. The countries with advanced chemical technology like U.S.A , U.K. and W. Germany have developed methods for utilising the cheaper Thai Seedlac and started importing more lac from Thailand and the demand for better quality high priced Indian Lac has gone down. Over a period of 20 years from 1967-68 to 1986-87, the exports varied between 5,624 and 18,000 tonnes. From year to year there are large fluctuations in the tonnage exported. The record shows that during the last one decade 1977-78 to 1986-87 the world consumption of Seedlac, Shellac together by India and Thailand 14,000 tonnes a year. The reason the demand for Indian Lac was to high prices for the finished uncertainty in supply position.

In the present paper the relationship between international prices of finished (Shellac & Seedlac) and the quantity have been studied. The period for the study was 1967-68 to 1986-87.

Material and Methods

The data on Lac Exports for the 1967-68 to 1986-87 and the international of Shellac and Seedlac for the corresponding period were analysed and given in Table (Anon. 1987-88).

The techique adopted for the study consists of fitting a second degree polynomial to international prices of lac and polynomial coefficients as independent variable and export as dependent variable in a regression equation.

Results and Discussions

Data shows that during the 20 year period the highest export figure was 18,000 tonnes (in 1968-69) and the international prices of lac was only Rs. 2.30 per tonne and lowest export figure was

Table 1

Data on lac exports and the international prices of lac for the period 1967-68 to 1986-87

Year	Exports (tonnes)	International prices of Shellac/Seedlac* (Rs./tonne)
1967 68	15,391	3,000
1968-69	17,712	2,300
1969-70	16,739	2,720
1970-71	13,347	4,020
1971-72	13,721	4,790
1972-73	7,564	10,340
1973-74	5,608	26,020
1974-75	7,332	20,800
1975-76	7,825	6,860
1976-77	7,092	6,500
1977-78	6,733	4,700
1978-79	9,264	4,000
1979-80	11,045	8,000
1980-81	10,318	10,000
1981-82	10,701	14,000
1982-83	7,002	16,000
1983-84	5,814	23,000
1984-85	5,145	35,000
1985-86	5,624	93,000
1986-87	6,867	49,000

Source : Shellac Export Promotion Council, Calcutta.

* Converted at the exchange rate prevalent on that date.

tonnes (in 1984-85). The international price was Rs. 35,000 per tonne (in 1984-85) and in the next year it went upto Rs. 93.000/- per tonne whereas the export was only 5,624 tonnes. Graphs showing lac exports in different years and movement of prices (of Shellac & Seedlac) are in Fig. 1 and 2 respectively.

Fig 1

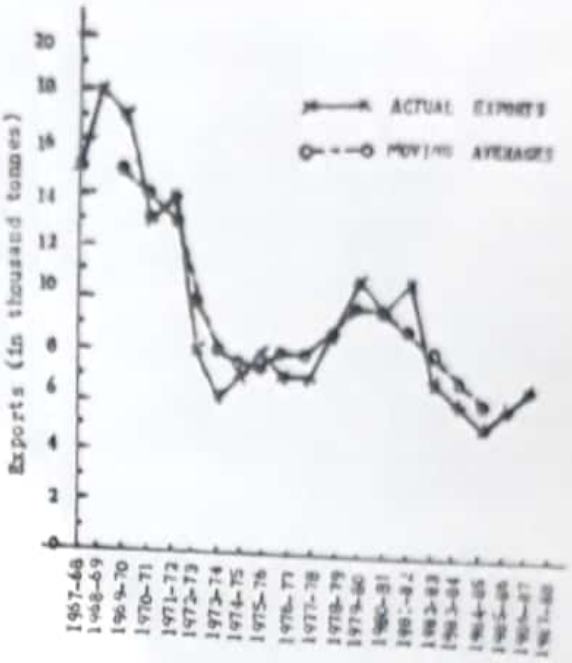
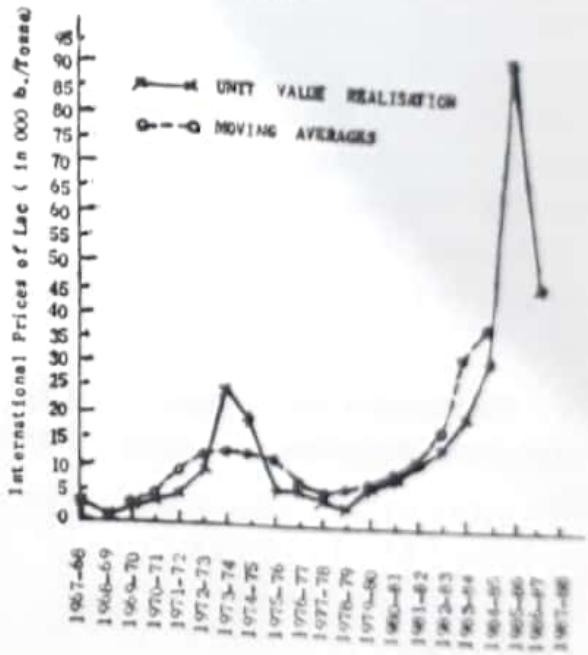


Fig. 2



By using orthogonal polynomials (Fisher and Yates, 1953) it was decided to fit a fifth degree polynomial to the time series of 20 equally spaced annual international lac prices.

The analysis of variance for individual degree of fitting is given in the Table 2.

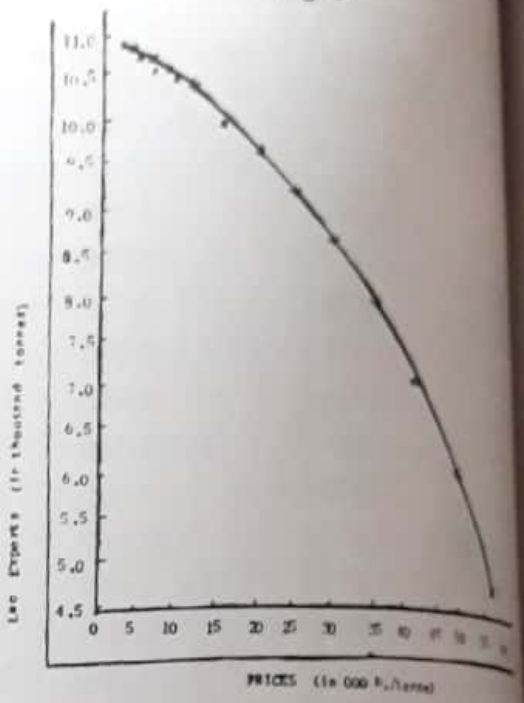
Table 2

Degree	S.S.	D.F.	M.S.	F.	5% Point
First	3890.60	1	3890.60	15.68	4.60*
Second	1523.08	1	1523.08	6.14	4.60*
Third	13.10	1	13.10	0.053	
Fourth	3.11	1	3.11		
Fifth	2.48	1	2.48		
Residual	3474.13	14	248.15		

* Denotes significant.

It is clear from the analysis that a polynomial of the 2nd degree (Parabola) can be fitted. The equation of parabola is $x = 17.2 + 1.21\ \xi_1 t + 0.29\ \xi'_2 t$. The value of x for any given year can be calculated from the above equation and the values of polynomials are calculated. By using these polynomial coefficients as independent variables (x) and lac exports as dependent variable (y) a second degree regression curve of the form $y = a + b_1 x + b_2 x^2$ was fitted. The equation thus obtained is $y = 10.94 - 0.0382\ x - 0.0012\ x^2$. The degree curve obtained from the data in the graph (Fig. 3).

Fig. 3



The relation between quantity of lac exported and international price of lac is found to be expressible in the above form with reasonable accuracy. This shows that due to high prices the quantity of lac exports has fallen in the world market.

SUMMARY

The relation between quantity of lac exported and international price of lac is found to be expressible in the form $y = 10.94 - 0.0382\ x - 0.0012\ x^2$ with reasonable accuracy.

लाख के मूल्य और निर्यातित मात्रा के संबन्ध का अध्ययन

ए० रत्न राव

सारांश

निर्यात की गई लाख की मात्रा और लाख के अन्तरराष्ट्रीय मूल्य का संबन्ध $y = 10.94 - 0.382\ x - 0.0012\ x^2$ समीकरण द्वारा पर्याप्त सुनध्यता से अभिव्यक्त किया जा सकता है।

References

Anon. (1987-88). *31st Annual Report* of Shellac Export Promotion Council, Calcutta.

Fisher and Yates (1953). Statistical table for Biological, Agricultural & Medical Research *Orthogonal Polynomials.*