Journal of Management Research and Analysis 2024;11(1):30–32

Content available at: https://www.ipinnovative.com/open-access-journals

Journal of Management Research and Analysis

Journal homepage: https://www.jmra.in/

Original Research Article

Cobweb phenomenon in rubber market of Kerala

M. Vishnuprathap[1], V. K. Shilpa[2], N. Karunakaran[3]*

[1]*Dept. of Economics, Malur Government Higher Secondary School, Kannur, Kerala, India*
[2]*Dept. of Economics, CK Nair Arts and Management College, Kerala, India*
[3]*Dept. of Economics, People Institute of Management Studies (PIMS), Munnad, Kasaragod, Karela, India*

ARTICLE INFO

Article history:
Received 16-01-2024
Accepted 01-02-2024
Available online 04-03-2024

Keywords:
Kerala
Price
Rubber
Cultivators
Cobweb Phenomenon

ABSTRACT

More than 90 percent of rubber produced in India is from Kerala. The state holds a dominant position both in area and production. But now a day farmers are looking at alternative crops or not tapping their rubber as prices have crashed due to lack of demand, imports and labour cost. The study revealed that during high priced season farmers in Kerala shifted from other plantation crops like cashew, coconut, etc. to rubber or they focus only in rubber production but in higher prices, seeks to benefit from higher prices. These results in surplus production, more than the demand, resulting in a price crash, often referred to as the 'problem of plenty'. Seeing the low prices, farmers switch to different crops or produce less of the same crop, leading to lower than usual production for that particular crop. This increases the prices of crops, completing the cyclical variations in price and production reflects Cobweb phenomenon.

1. Introduction

The Indian natural rubber sector registered a growth of 8.3 percent in consumption in 2022-23 over the previous year. Rubber production increased to 839,000 tonnes in 2022-23 from 775,000 tonnes in 2021-22. Meanwhile, consumption increased from 1,238,000 tonnes in 2021-22 to 1,350,000 tonnes in 2022-23.[1] Major rubber producing states in India are Kerala, Tamilnadu and Karnataka; other includes Tripura, Assam, Meghalaya, Nagaland, Manipur, Goa, Andaman and Nicobar Islands. Kerala has a long tradition in the cultivation of plantation crops.[2–5] Rubber, tea, coffee and cardamom are the major plantation crops in Kerala. Kerala holds a dominant position both in the area of cultivation as well as in the production of natural rubber in India. Kerala at present has 550650 hectares of area, 492500 tonnes of production and 894 kg/ha of productivity.

In every market price of a commodity is determined by the equality between market forces, demand and supply.[3,6] But in the agriculture market previous price play vital role in determining current supply.[4,7] Therefore higher previous prices result higher supply of that commodity. It causes reduction in the price of the same commodity.

1.1. Objectives

The main objective is to analyse the effect of cobweb phenomenon on current quantity supply of rubber in Kerala.

2. Materials and Methods

The study is solely relied on secondary data; collected from Rubber Board, publications of Govt. of Kerala and India. Growth rate, Correlation, and Regression are used for data analysis. To check the cobweb in rubber market correlation between current output or supply and previous year price up to 5 year back is used. Correlation between

* *Corresponding author.*
E-mail address: narankarun@gmail.com (N. Karunakaran).

https://doi.org/10.18231/j.jmra.2024.006

current output and previous prices were estimated with the following regression model.

Y= 31901 + bXn-p

F test is applied to test the significance of b

3. Results, Analysis and Discussion

Table 1 shows the annual growth rate of area, production and productivity of rubber. It clearly revealed that there is an increasing and decreasing trend in annual growth rate in area, production and productivity. Fall in the price of rubber results fall in the rubber cultivated area. In the case of productivity, six years witnessed a negative trend. The production and productivity moves in the same manner.

Table 1: Annualgrowth rate of area, productivity and production

Year	Annual Growth rate		
	Area	Productivity	Production
2003-04	0.0049	0.095	0.1012
2004-05	0.0047	0.050	0.0544
2005-06	0.0286	0.040	0.0701
2006-07	0.0159	0.039	0.0557
2007-08	0.0195	-0.053	-0.0349
2008-09	0.0106	0.029	0.0403
2009-10	0.0153	-0.063	-0.0485
2010-11	0.0168	0.016	0.0336
2011-12	0.0100	0.027	0.0368
2012-13	0.0000	0.001	0.0014
2013-14	0.0160	-0.203	-0.1898
2014-15	0.0032	-0.219	-0.2168
2015-16	0.0016	-0.138	-0.1360
2016-17	0.0004	0.232	0.2320
2017-18	0.0001	0.000	0.0007
2018-19	0.0000	0.000	0.0000
2019-20	0.0002	-0.089	-0.0893
2020-21	-0.0010	0.000	0.0000

Source: Rubber Board Statistics

In Figure 1, the area curve shows that, there is no continuous increase or continuous decrease. It moves like a smooth straight line for a static manner. But in the case of production and productivity, the curve moves in opposite manner of area curve, that is continuous upward and downward movements.

Table 2 shows regression statistics. In this table Pn represents current price of rubber. Pn-1 to Pn-6 represents previous six year prices respectively. It revealed that there is no significant relationship between current price and current quantity supplied, the correlation value is only 0.06662 and P-value is greater than 0.05. But move to previous prices especially in the case of three and four year back, prices significantly correlated with current quantity supply, that is, when move from current to previous year prices quantity supplied is strongly correlated with previous prices.Table 2 also shows that the correlation between current quantity supplied and four year back price is significantly correlated;

Table 2: Regressionstatistics

	Pn	P n-1	P n-2	P n-3	P n-4	P n-5	P n-6
Multiple R	0.06662	0.3794	0.6787	0.8415	0.8164	0.734	0.7334
R Square	0.00444	0.144	0.4606	0.7082	0.6666	0.5388	0.5378
Adjusted R Square	-0.0541	0.0869	0.4246	0.6873	0.6409	0.5003	0.4958
Standard Error	5084.85	4587.1	3948.6	2991.8	3288.7	4013.3	4159.4
Observations	19	17	17	16	15	14	13
P-value	0.78641	0.1331	0.0027	0.0024	0.0002	0.0028	0.0043

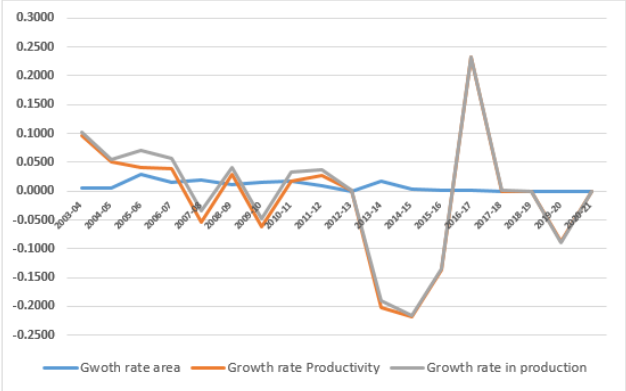

Figure 1: Annual growth rate of area, productivity and production

in that case P-value is minimum, compared to other previous year prices. So the study chooses this regression model (Y = a + 0.067 Pn-4).

4. Conclusion

Rubber is an important plantation crop cultivated in Kerala. The state holds a dominant position in area, production and productivity. The study shows an increasing and decreasing trend in annual growth rate in area, production and productivity. Fall in the price of rubber results; fall in the rubber cultivated area. In the case of productivity, six years witnessed a negative trend. It also revealed that there is no significant relationship between current price and current quantity supplied, the correlation value is only 0.06662 and P-value is greater than 0.05. But move to previous prices especially in the case of three and four year back, prices significantly correlated with current quantity supply, that is, when move from current to previous year prices quantity supplied is strongly correlated with previous prices. Therefore, cobweb phenomenon exist in rubber production market in Kerala.

5. Source of Funding

None.

6. Conflict of Interest

None.

References

1. of Kerala G. A Compendium of Agricultural Statistics, Directorate of Agriculture Development & Farmers' Welfare; 2023. Available from: https://keralaagriculture.gov.in/wp-content/uploads/2023/06/New-A-Compendium-of-Agril-Stat-Kerala-2023-2.pdf.
2. Karunakaran N. Shift to rubber cultivation and consequences on environment and food security in Kerala". *J Rural Develop*. 2013;32(4):395–408.
3. Karunakaran N. Crop Diversification for Sustainable Agriculture. 1st ed. Pointer Publishers; 2015. p. 238.
4. Karunakaran N. Rubber cultivation in Kerala: Determinants and growth", Agricultural Situation in India; 2016.
5. Karunakaran N. Transformation of agriculture towards rubber cultivation in Kerala, its determinants and growth". *Indian Journal of Economics and Development*. 2017;13(2):363–368.
6. Karunakaran N. Volatility in prices of rubber crop in Kerala. *J Krishi Vigyan*. 2017;5(2):160–3.
7. Karunakaran N, Reshma A. Price-volatility and Problems faced by Rubber-cultivators in Kerala; 2018.

Author biography

M. Vishnuprathap, HSS Teacher

V. K. Shilpa, Assistant Professor

N. Karunakaran, Principal and Research Guide in Economics

Cite this article: Vishnuprathap M, Shilpa VK, Karunakaran N. Cobweb phenomenon in rubber market of Kerala. *J Manag Res Anal* 2024;11(1):30-32.