IMPACT OF COIR FIBRE PRODUCTION IN KERALA ON COIR FIBRE EXPORT FROM INDIA

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Abstract

Coir Industry is an important agro-based village and cottage industry in India. The growth of coir industry greatly depends on the availability of coconut husk. This is owing to the fact that coir is made from the fibre extracted from coconut husk. Hence coconut production is the great determinant for the growth of coir industry. "Coconut is cultivated in 93 countries of the world and it extending over 12.78 million hectares producing more than 54,000 million nuts every year" (Coconut Development Board, 2016). India and Sri Lanka are the top producers of coconut across the globe. Kerala is the land of both coconut cultivation and Indian coir industry. Export trade is the most vital part of the economy of the country as it paves for the pumping of foreign exchange earnings. The fibre produced in Kerala (India) has large export market due to its ecofriendly nature and golden image. Coir industry in India produces various value-added products like coir blankets coir log, coco net, coir briquettes, grow bag, coir pole, coir pots, tufted mat, matters fibre, rubberised coir matters, coir yarn etc. and fetches 156 lakhs crore foreign exchange annually. These products have export market in 89 countries including South Asian countries all over the world. U.S.A is the largest importer of coir products from India followed by Germany and the U.K.

Key Words: Compound Annual Growth Rate (CAGR), FMUs, Coir fibre, Golden fibre, Export Orientation.

I. INTRODUCTION

Kerala is considered to be the birth place of coir industry. The abundant supply of coconut husk is the major contributory factor that nurtures the growth of this industry over the years. The cultivation and production of coconut in Kerala shows the background settings conducive to sustaining the industry in future.

Coir fibre is a natural fibre obtained from coconut husk and made up of brown form of cellulose. It is extracted from the outer stratum of coconut. This outer stratum is called coconut husk. Fibre is naturally 10 to 30 centimeters length with a diameter of 12-25 microns. Coir fibre is eco-friendly because of its biodegradability and renewable characteristics. It founds in tropical regions such as India, Bangladesh, Sri Lanka, Thailand etc. and has significant role in the economy of such nations. The inherent drawback of this natural fiber is poor moisture resistance, low resistance to microbial attack, and poor surface adhesion for association with a polymer matrix. Therefore, natural fibers require the addition of coupling agents or the chemical modification for the final applications in composite materials.

II. RESEARCH METHODOLOGY

The study is based on secondary data. Secondary data collected from the annual reports, journals, various research articles and theses from the following institutions.

(I)   The Coir Board, Kochi.

(II)   The Central Coir Research Institute (CCRI), Alappuzha, Kerala.

(III)   The Centre for Development of Coir Technology (C–DOT), Thiruvananthapuram.

(IV)   The Coconut Development Board (CDB), Kochi.

(V)   Directorate of Coir Development (DCD), Thiruvananthapuram, Kerala.

III. POPULATION DISRIBUTION AND SAMPLING SIZE

It has estimated that a total of 5146 registered FMUs have been functioning in Kerala as on 31.03.2019, it consists 3009 units in Alappuzha and 1016 units in Kollam district.

Sample size of the FMUs in Alappuzha and Kollam districts were computed by using Cochran's formula at 95 percentage confidence level.

Sample size $= \dfrac{z^2 \, pq}{e^2}$

As per the Cochran's formula the sample size of FMUs in Alappuzha district consists of 300 and that of in in Kollam district 100.

IV. Objective of Study

1. To measure the Compound Annual Growth Rate (CAGR) for fibre production in Kerala and fibre export from India

2. To analyse the impact of coir fibre production in Kerala on Fibre Export from India.

V. HYPOTHESES

H0: There is no relationship between fibre production in Kerala and value of coir export from India

VI. STATISTICAL TOOL

Ordinary Least Square (OLS) Regression

VII. RESULTS AND DISCUSSION

Kerala is the birth place of Indian coir industry. The fibre produced in Kerala has great export market due to its golden image. The fibre manufacturing in Kerala has direct impact on Indian coir export. Table 1.01 shows the Compound Annual Growth Rate of fibre production in Kerala and coir export from India.

Table 1.01 CAGR of Fibre Production in Kerala and Coir Exports from India

Year	Fibre production (tonnes) Kerala	Coir Exports From India (metric tons '000)	Coir Exports From India (Rs. In crore)
2000-2001	132251	48.28	206.85
2001-2002	129238	46.37	212.58
2002-2003	129123	49.85	238.93
2003-2004	128810	55.49	292.19
2004-2005	128580	61.03	303.05
2005-2006	128650	67.49	313.66
2006-2007	128560	71.34	320.58
2007-2008	120000	84.18	352.71
2008-2009	116620	102.25	407.5
2009-2010	113670	122.93	433.4
2010-2011	106160	321.01	807.07
2011-2012	102077	410.85	1052.62
2012-2013	94039	429.5	1116.03
2013-2014	94566	537.4	1425.77
2014-2015	86240	627.6	1630.33
2015-2016	69240	752.2	1901.42
2016-2017	43397	957.45	2281.65
CAGR	-0.0672746	0.205269877	0.161882188

Table 1.01 says that the fibre production in Kerala recorded a negative CAGR - 6.7 percentage while CAGR for fibre export from India shows 0.52 percentage in quantity and .18 percentages in value.

Linear Relationship between fibre production quantity in Kerala and Value of Coir Exports from India

The abundant supply of husk is the contributory factor for the fibre production in Kerala. But the acute shortage of husk in Kerala results the reduction of fibre production. In this section researcher intends to find out the impact

of the variability of fibre production in Kerala on coir export value of India. Following tests are conducted to find out the linear relationship between fibre production in Kerala and coir export value of India.

Table 1.02 OLS Regression Results Summary

Dependent Variable: Exp_Value_Ind			Method: Least Squares	
Sample: 1 17			Included observations: 17	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Fib_Prod_Ker	0.0261	0.001445	18.05868	**0.000**
C	3624.32	161.239	22.47794	**0.000**
R-squared	0.956027	Durbin-Watson stat		1.092218
Adjusted R-squared	0.953095	F-statistic		326.1158
S.E. of regression	144.4654	Prob(F-statistic)		**0.000**

H0: There is no linear relationship between fibre production in Kerala and value of coir export from India

The null hypothesis gets rejected, at 5 per cent significance level, since probability of t statistic is lesser than 0.05. This implies that significant linear relation exists between fibre production quantity in Kerala and value of coir export from India.

Since the p values of t- statistics are lesser than 0.05, the null hypothesis that the coefficient is zero gets rejected, at 5 per cent significance level. It may be inferred that the coefficients are significant. A very high R-squared and adjusted R-squared indicate a very good fit of the regression model. The Durbin-Watson statistic of 1.09 does not raise any alarm of first order serial correlation. The null hypothesis that the fit of the intercept only model is as good as the specified model gets rejected, at 5 per cent significance level, since the p value of F statistic is less than 0.05. It is implied that the model has more explanatory power than the intercept only model.

The regression may be represented as follows.

Export Value India = 3624.32 + 0.0261*Fiber Production in Kerala

It is inferred from the regression analysis that 100 per cent increase in fibre production in Kerala reflects as 102.6 percentage increase in Indian coir export value.

Model Specification – Ramsey's RESET Test

The functional form mis-specification if any of the model was tested using Ramsey RESET Test, the results of which are summarized in Table 1.03

Table 1.03 Ramsey RESET Test – Results Summary

	Value	df	Probability
t-statistic	1.456268	14	0.1674
F-statistic	2.120716	(1, 14)	0.1674

The null hypothesis that functional form is correctly specified cannot be rejected, at 5 per cent significance level, since the probabilities of t-statistic and F- statistic exceeds 0.05. Thus, it can be inferred that there is no functional mis-specification in the model.

X. CONCLUSION

Kerala is the land of both coconut cultivation and Indian coir industry. The fibre produced in Kerala has large export market due to its golden image. The fibre manufacturing in Kerala has linear relation on coir export from India. It is inferred that quantity of coir fibre production in Kerala has significant impact on Value of Coir Exports from India. The effective as well as the timely implementation of the appropriate measures has the potential to transform the coir fibre yarn spinning units of Kerala into 'Money Spinning Units' in the long run. Such a phenomenon supplements the statement that the 'coir yarn is the golden yarn' of the agro-based industrial sector of rural Kerala.

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