



RESEARCH ARTICLE  
Vol.7.Issue.4.2020  
Oct-Dec.



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA  
**2 3 4 9 - 4 6 3 8**

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**INTERNATIONAL JOURNAL OF BUSINESS, MANAGEMENT  
AND ALLIED SCIENCES (IJBMAS)**  
*A Peer Reviewed and refereed Journal*

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**RUBBER INDUSTRY IN KERALA: AN ANALYTICAL STUDY**

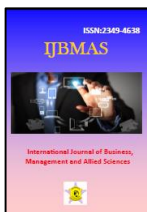
**Dr. ADARSH**

Assistant Professor, Post Graduate Department of Economics, S.N. College, Cherthala,  
Kerala, India.

Email-assistantprofessoradarsh@gmail.com

DOI: [10.33329/ijbmas.7.4.120](https://doi.org/10.33329/ijbmas.7.4.120)

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**ABSTRACT**

The barely fascination that stable is change. We are practicing change in our everyday life and at marketplace too. Consumer needs, wants, behaviour are changing more quickly; consumers are increasingly more challenging, they always demand novel products: services are looming to market more quickly, antagonism is reaching powerful and widespread ; know-how is shifting swiftly; and e-commerce and Internet is having a massive waft on marketing practises. In such a quick changing marketing settings, the businessmen are facing a variety of marketing challenges. The situation is not so different for the Rubber based Industries in Kerala. In fact, in Kerala, Rubber based Industries are facing severe and critical competition, especially from the global enterprises. Since the domestic enterprises are performing with the support of the local production, it is very imperative to study it. In this regard, an attempt has been done by the researcher to make an analytical study of the Rubber based Industries in Kerala.

The ending of any research work turn out to be prolific when the data is appropriately collected by using a suitable tool, warily appraised, methodically observed, correctly inferred and acknowledged the proper findings. Accordingly, the present study clearly states that Area of rubber industries in Kerala do not influence the raw material used as both variables are independent to each other. Ownership of rubber industries in Kerala do influence the raw material used. This shows that ownership and raw material used are dependent to each other. When the ownership of rubber industries changes, that lead a corresponding change to the nature of raw materials used. Area of operation rubber industries in Kerala do influence the raw material used. This shows that area of operation and raw material used are dependent to each other. When the area of operation of rubber industries changes, that lead a corresponding change to the nature of raw materials used.

Keywords: Area of Study, Nature of Ownership, Area of operation, Raw material used.

JEL Codes: L00, L10, L60, L65

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## 1. INTRODUCTION

The barely fascination that stable is change. We are practicing change in our everyday life and at marketplace too. Consumer needs, wants, behaviour are changing more quickly; consumers are increasingly more challenging, they always demand novel products: services are looming to market more quickly, antagonism is reaching powerful and widespread ; know-how is shifting swiftly; and e-commerce and Internet is having a massive waft on marketing practises. In such a quick changing marketing settings, the businessmen are facing a variety of marketing challenges. The situation is not so different for the Rubber based Industries in Kerala. In fact, in Kerala, Rubber based Industries are facing severe and critical competition, especially from the global enterprises. Since the domestic enterprises are performing with the support of the local production, it is very imperative to study it. In this regard, an attempt has been done by the researcher to make an analytical study of the Rubber based Industries in Kerala.

## 2. METHODOLOGY

To make the study more meaningful and logical, the researcher has selected Rubber industry in Kerala at micro level. This attempt will help to do a very effective micro level study of the Rubber Industrial Units (Sole Proprietor, Firm and Company). For this purpose, the researcher prepared an interview schedule keeping in mind all the important aspects related to it. The interview schedule was administered to the units of Rubber industry in three major regions in the state i.e.: Southern Region (Thiruvananthapuram, Kollam, Pathanamthitta, Alappuzha), Central Region (Kottayam, Idukki, Ernakulum, Thrissur, Palakkad, Malappuram), and Northern Region (Kozhikode, Wayanad, Kannur, Kasaragod). From Southern Region, 63 units (27.0%), Central Region 118 units (50.6%) and from Northern Region 52 units (22.3%) were selected for the study. Some of the basic information of this study is provided below.

In this study, 41 (17.6%) respondents are having their age below twenty five. 41 (17.6%) respondents belong to 25-35 age group. 46 (19.7%) respondents belong to 35-45 age group. 57 (24.5%) respondents belong to 45-55 age group. Forty eight (20.6%) respondents are having the age group above 55. The total number of males are 214 (91.8%) and 75 (32.2%) of total respondents are having educational qualification up to secondary. 59 (25.3%) respondents qualified to higher secondary as their educational qualification. 77 (33.0%) respondents are graduates. 22 (9.4%) of total respondents are post graduates.

In this study, 126 (54.1%) Rubber Industrial Units are of local nature and 74 (31.8%) Rubber Industrial Units are of national nature. 33 (14.2%) Rubber Industrial Units are of international nature. Similarly, 121 (51.9%) Rubber Industrial Units are run by Sole Proprietors and 67 (28.8%) Rubber Industrial Units are of Firm nature. 45 (19.3%) Rubber Industrial Units are of Company nature. Moreover, 121 (51.9%) Rubber Industrial Units use Natural Rubber (NR) as their raw material. 53 (22.7.8%) Rubber Industrial Units use Synthetic Rubber as their raw material. 59 (25.3%) Rubber Industrial Units use both Natural and Synthetic Rubber. These facts are provided in the table below

## 3. RESULTS AND DISCUSSION

**Table: 1: BASIC INFORMATION**

### AREA OF THE STUDY

	Frequency	Percent
Southern Region	63	27.0
Central Region	118	50.6
Northern Region	52	22.3
Total	233	100.0

**AGE GROUP OF THE STUDY**

	<b>Frequency</b>	<b>Percent</b>
Below 25	41	17.6
25-35	41	17.6
35-45	46	19.7
45-55	57	24.5
Above 55	48	20.6
Total	233	100.0

**GENDER GROUP OF THE STUDY**

	<b>Frequency</b>	<b>Percent</b>
Male	214	91.8
Female	19	8.2
Total	233	100.0

**EDUCATION LEVEL IN THE STUDY**

	<b>Frequency</b>	<b>Percent</b>
Up to secondary	75	32.2
Higher Secondary	59	25.3
Degree	77	33.0
Post-Graduation	22	9.4
Total	233	100.0

**AREA OF OPERATION**

	<b>Frequency</b>	<b>Percent</b>
Local	126	54.1
National	74	31.8
International	33	14.2
Total	233	100.0

**NATURE OF OWNERSHIP**

	<b>Frequency</b>	<b>Percent</b>
Sole Proprietor	121	51.9
Firm	67	28.8
Company	45	19.3
Total	233	100.0

**TYPES OF THE PRODUCT (RUBBER)**

	Frequency	Percent
Natural	121	51.9
Synthetic	53	22.7
Both	59	25.3
Total	233	100.0

Source: Compiled from field Survey

Based on this information we can make the following analyses.

**AREA OF STUDY AND RAW MATERIAL USED**

Cross tabulation of Area of study and Raw material used can be explained with help of the following table.

**Table: 2: Area of study and Raw materials used**

Crosstab			Raw material			Total
			Natural	Synthetic	Both	
Area	Southern Region	No.	28	13	22	63
		%	44.4%	20.6%	34.9%	100.0%
	Central Region	No.	65	31	22	118
		%	55.1%	26.3%	18.6%	100.0%
	Northern Region	No.	28	9	15	52
		%	53.8%	17.3%	28.8%	100.0%
Total		No.	121	53	59	233
		%	51.9%	22.7%	25.3%	100.0%
<b>Chi-Square Tests</b>						
Pearson Chi-Square Value			Asymp. Sig. (2-sided)		Result	
7.012			0.135		Not significant	

Source: Computed from field Survey

From the above cross tab table it is clear that 28 Rubber Industrial Units from Southern region, 65 units from Central region and 28 units from Northern region use Natural Rubber as the raw material. At the same time, 13 Rubber Industrial Units from Southern region, 31 units from Central region and 9 units from Northern region use Synthetic Rubber as the raw material. Similarly 22 Rubber Industrial Units from Southern region, 22 units from Central region and 15 units from Northern region use both Natural and Synthetic Rubber as the raw material.

Now it is imperative to know the association between area and raw material used, Chi Square test was done. Since the CVTS (Chi-Square test) is 7.012 and P Value is 0.135, ( $P > 0.05$ ),  $H_0$  formulated in this regard is accepted for the attribute of area and raw material used. That means there is no significant association between the area and raw material used. This shows that area and raw material used are independent to each other.

### NATURE OF OWNERSHIP AND RAW MATERIALS USED

Cross tabulation of Ownership and Raw material used can be explained with help of the following table.

**Table: 3 Nature of Ownership and Raw materials used**

Crosstab		Raw material			Total	
		Natural	Synthetic	Both		
Ownership	Sole Proprietor	No.	82	25	14	121
		%	67.8%	20.7%	11.6%	100.0%
	Firm	No.	27	22	18	67
		%	40.3%	32.8%	26.9%	100.0%
	Company	No.	12	6	27	45
		%	26.7%	13.3%	60.0%	100.0%
Total		No.	121	53	59	233
		%	51.9%	22.7%	25.3%	100.0%
Pearson Chi-Square Value		Asymp. Sig. (2-sided)			<b>Result</b>	
48.574		0.000			<b>Significant</b>	

*Source: Computed from field Survey*

From the above cross tab table it is clear that 82 Rubber Industrial Units run by Sole Proprietors, 27 units run by Firms and 12 units run by Companies use Natural Rubber as the raw material. At the same time, 25 Rubber Industrial Units run by Sole Proprietors, 22 units run by Firms and 6 units run by Companies use Synthetic Rubber as the raw material. Similarly 14 Rubber Industrial Units run by Sole Proprietors, 18 units run by Firms and 27 units run by Companies use both Natural and Synthetic Rubber as the raw material.

Now it is imperative to know the association between ownership and raw material used, Chi Square test was done. Since the CVTS (Chi-Square test) is 48.574 and P Value is 0.000, ( $P < 0.05$ ),  $H_0$  formulated in this regard is rejected for the attribute of ownership and raw material used. That means there is significant association between ownership and raw material used. This shows that ownership and raw material used are dependent to each other.

### AREA OF OPERATION AND RAW MATERIALS USED

Cross tabulation and Chi-Square Tests of Area of operation and Raw material can be explained with help of the following table 4.

From the above cross tab table it is evident that 77 Rubber Industrial Units which operates at the local level, 31 units which operates at the national level and 13 units which operates at the international level use Natural Rubber as the raw material. At the same time, 28 Rubber Industrial Units which operates at the local level, 16 units which operates at the national level and 9 units which operates at the international level use Synthetic Rubber as the raw material. Similarly 21 Rubber Industrial Units which operates at the local level, 27 units which operates at the national level and 11 units which operates at the international level use both Natural and Synthetic Rubber as the raw material.

Now it is vital to know the association between area of operation and raw material used, Chi Square test was done. Since the CVTS (Chi-Square test) is 13.040 and P Value is .011, ( $P < 0.05$ ),  $H_0$  formulated in this regard is rejected for the attribute of area operation and raw material used. That means there is significant association between area of operation and raw material used. This shows that area of operation and raw material used are dependent to each other.

**Table: 4 Area of operation and Raw material used**

Crosstab			Raw material			Total
			Natural	Synthetic	Both	
Area of Operation	Local	No.	77	28	21	126
		%	61.1%	22.2%	16.7%	100.0%
	National	No.	31	16	27	74
		%	41.9%	21.6%	36.5%	100.0%
	International	No.	13	9	11	33
		%	39.4%	27.3%	33.3%	100.0%
Total		No.	121	53	59	233
		%	51.9%	22.7%	25.3%	100.0%
Pearson Chi-Square Value		Asymp. Sig. (2-sided)		Result		
13.040		0.011		Significant		

Source: Computed from field Survey

### MONTHLY EARNINGS AND YEARS OF EXPERIENCE

Monthly Earnings and Years of Experience of different Rubber Industrial Units based on the nature of ownership (Sole Proprietorship, Firm and Company) are analyzed below.

**Table: 5 Monthly Earnings and Years of Experience (Descriptive Statistics)**

		N	Mean	Std. Deviation
Monthly Earnings	Sole Proprietor	121	278118.570	339283.5819
	Firm	67	412470.985	402300.0627
	Company	45	721455.644	400702.8106
	Total	233	402375.137	404802.7603
Years of Experience	Sole Proprietor	121	28.281	11.8443
	Firm	67	31.060	11.3162
	Company	45	33.378	10.6265
	Total	233	30.064	11.5967

Source: Computed from field Survey

The average monthly earnings of Sole Proprietorship type Rubber Industrial Units is Rs.278118.57. The figure for the Firm Rs.412470.99 and Company is Rs.721455.64. As far as the average years of experience are concerned, Sole Proprietorship type Rubber Industrial Units have an average experience of 28.28 years, the Firm 31.06 years and for the Company it is 33.38 years.

**Table: 6 ANOVA Test for Monthly Earnings and Years of Experience**

		Sum of Squares	df	Mean Square	F	Sig.
Monthly Earnings	Between Groups	6456588732436.6	2	3228294366218.330	23.527	.000
	Within Groups	31560155010794.9	230	137218065264.326	Result	
	Total	38016743743231.6	232		Significant	

Experience	Between Groups	945.2	2	472.625	3.593	.029
	Within Groups	30254.7	230	131.543	<b>Result</b>	
	Total	31200.034	232		<b>Significant</b>	

Source: Computed from field Survey

Now it is imperative to examine Monthly Earnings and Years of Experience of different Rubber Industrial Units based on the nature of ownership (Sole Proprietorship, Firm and Company) were examined with the support of ANOVA. In two cases, the P Value obtained is less than 0.05; Ho formulated in this regard is rejected. That is, there is significant difference in the Monthly Earnings and Years of Experience of different Rubber Industrial Units based on the nature of ownership.

**Table: 7 LSD Test (Least Significant Difference  $t$  – test) of monthly earnings and years of experience**

Dependent Variable	(I) Ownership	(J) Ownership	Mean Difference (I-J)	Std. Error	Sig.
Monthly Earnings	Sole Proprietor	Firm	-134352.4148*	56409.7901	.018
		Company	-443337.0742*	64678.6204	.000
	Firm	Sole Proprietor	134352.4148*	56409.7901	.018
		Company	-308984.6594*	71395.5262	.000
	Company	Sole Proprietor	443337.0742*	64678.6204	.000
		Firm	308984.6594*	71395.5262	.000
Years of Experience	Sole Proprietor	Firm	-2.7787	1.7466	.113
		Company	-5.0968*	2.0026	.012
	Firm	Sole Proprietor	2.7787	1.7466	.113
		Company	-2.3181	2.2105	.295
	Company	Sole Proprietor	5.0968*	2.0026	.012
		Firm	2.3181	2.2105	.295

\*. The mean difference is significant at the 0.05 level.

Source: Computed from field Survey

Post Hoc analysis of monthly earnings showed that in all cases, the P Value obtained is less than 0.05. That is, there is significant difference in the monthly earnings of different nature of ownership (Sole Proprietorship, Firm and Company). In all cases mean earnings of the company type Rubber Industrial Units are higher when compared to sole proprietorship and firms.

With reference to years of experience, statistically significant difference exists between Sole Proprietorship and Company (P value .012), which is more for company type Rubber Industrial Units. No other significant difference found in the comparison.

## CONCLUSIONS

The following are the conclusions based on the analytical study of the Rubber industry in Kerala



- 54.1% Rubber Industrial Units are of local nature and 31.8% Rubber Industrial Units are of national nature.
- 51.9% Rubber Industrial Units are run by Sole Proprietors and 28.8% Rubber Industrial Units are Firm type nature.
- 51.9% Rubber Industrial Units use Natural Rubber (NR) as their raw material and 22.7.8% Rubber Industrial Units use Synthetic Rubber as their raw material.
- There is no significant association between the area and raw material used as the CVTS (Chi-Square test) is 7.012 and P Value is 0.135, ( $P > 0.05$ ).
- There is significant association between ownership and raw material used as the CVTS (Chi-Square test) is 48.574 and P Value is 0.000, ( $P < 0.05$ ).
- There is significant association between area of operation and raw material used as the CVTS (Chi-Square test) is 13.040 and P Value is .011.

The ending of any research study turn out to be prolific when the data is appropriately collected by using a suitable tool, warily appraised, methodically observed, correctly inferred and acknowledged the proper findings. Accordingly, the present study clearly states that Area of rubber industries in Kerala do not influence the raw material used as both variables are independent to each other. Ownership of rubber industries in Kerala do influence the raw material used. This shows that ownership and raw material used are dependent to each other. When the ownership of rubber industries changes, that lead a corresponding change to the nature of raw materials used. Area of operation rubber industries in Kerala do influence the raw material used. This shows that area of operation and raw material used are dependent to each other. When the area of operation of rubber industries changes, that lead a corresponding change to the nature of raw materials used.

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