



INTERNATIONAL RESEARCH JOURNAL OF HUMANITIES AND INTERDISCIPLINARY STUDIES

(Peer-reviewed, Refereed, Indexed & Open Access Journal)

DOI : 03.2021-11278686

ISSN : 2582-8568

IMPACT FACTOR : 5.828 (SJIF 2022)

Sales analysis adopting data analytical tools for manufacturing sector

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DOI No. **03.2021-11278686** DOI Link :: <https://doi-ds.org/doi/10.2022-77145757/IRJHISIC2203079>

Abstract:

The present paper has focused on current scenario of sales of Selected Company rubber products for sugar industries. This paper includes sales in various states in India. Considering the current scenario, the researcher wants to predict the future sale by using time series analysis with the help of Excel and SPSS. The secondary data has been analyzed and interpreted so that it will be helpful for the organization for future planning. Predictive analysis using time series analysis method has been conducted to forecast future sales enabling company to set a valid target to work upon during upcoming years.

Keywords: Time Series, Predictive analysis, elasticity,

Introduction:

Rubber – a polymer characterized by its ability to stretch and regain its original form after removal of deforming force – has played an important role in creation of thousands of products. Rubber products have been an integral part of almost every industry since 19th century, when it was first introduced in industrial world. The properties of these polymers like elasticity, strength, tolerance to wide range of temperatures, resistance to abrasion, electrical insulation, resistance to oils and acids, etc. makes them ideal for various industrial as well as day to day products.

Rubber industry is one of the major industries in India contributing to nearly 3% of GDP. India is one of the largest global players in this sector and largest producer of natural rubber. Natural rubber is obtained from trees. Synthetic rubbers are artificially produced to get more desirable properties. Some of the widely used synthetic rubbers include styrene-butadiene copolymer (SBR), nitrile rubber (NBR), neoprene (CR), ethylene-propylene diene monomer (EPDM), silicon rubber,

butyl rubber (IIR) etc. With these properties of rubber polymer and current developments in the field, there is much better scope for Indian Rubber industry to grow.

This report explores sales data at Selected Company, one of the major rubber products manufacturers for sugar industries in Maharashtra.

Objectives of the study:

- To study sales data at Selected Company.
- To study the current scenario of sales of rubber products for sugar industries.
- Data extraction: Investigate data to find the potential market.
- Data interpretation: Use tools such as Excel and open source to interpret data for better analysis.
- Predictive Analysis: Use analytics to get ideas about future events

Scope of the study:

- Understanding and analyzing sales data at Selected Company and suggesting efficient strategies based on the same.

Research Methodology:

The name of the company is fictitious because of the management policy of the company. For the present study, only secondary data has been used. The data was collected from secondary sources like company's previous records and Books, journals and various reports about Indian Rubber Industry.

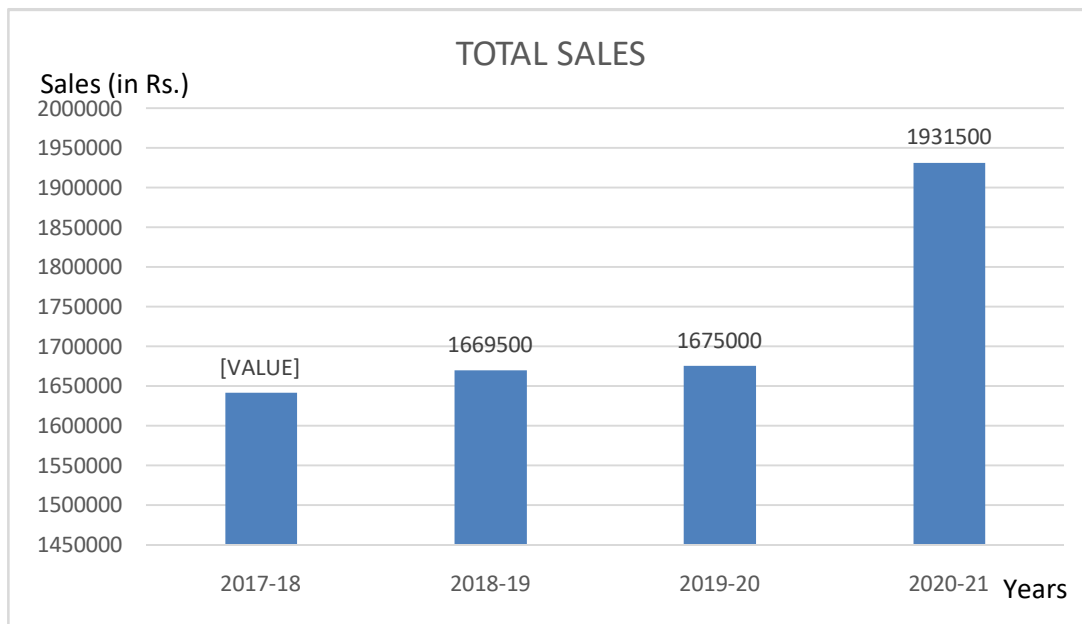
Limitations of the Study:

- The study was restricted to rubber products required by sugar industries.
- Data prior to 2017 is insufficient for analysis.
- The data of 4 years is small for analysis of 28 year old industry.

Presentation of Data and Discussion:

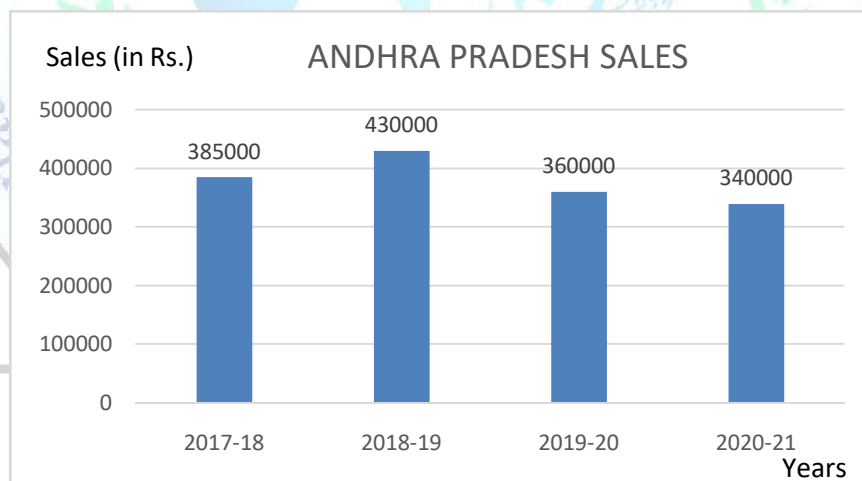
Under this part, the researcher has presented the sales data in a graphical form which can be understood easily. With the help of graphical presentation, interpretation and inferences have been drawn.

Graph No: 1 Total Sales



The above graph shows growth of inlast4yearswithconstantincrease. The rubber goods sales of Selected Company reached to 19.31 lacs in 2020-21 from 16.41 lacs in2017-18.It shows strong growth over the year with an average 4% change. In2020-21 it reached milestone of 19.31 lacs.

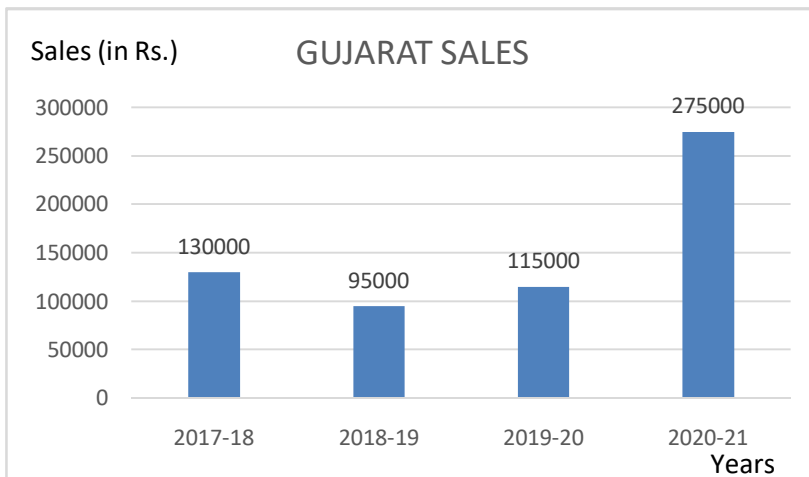
Graph No 2: Andhra Pradesh state sales analysis 2017-21.



Source: Sales Report, Selected Company

The graph shows the change in sales of Selected Company in last 4 years with respect to demands from customers in Andhra Pradesh state. The rubber goods sales of Selected Company in Andhra Pradesh state reached to 3.4 lacs in 2020-21 from 3.85 lacs in 2017-18.It was at its peak in year 2018-19 with value of 4.3 lacs. From year 2019-20 onwards it shows gradual dip in sales.

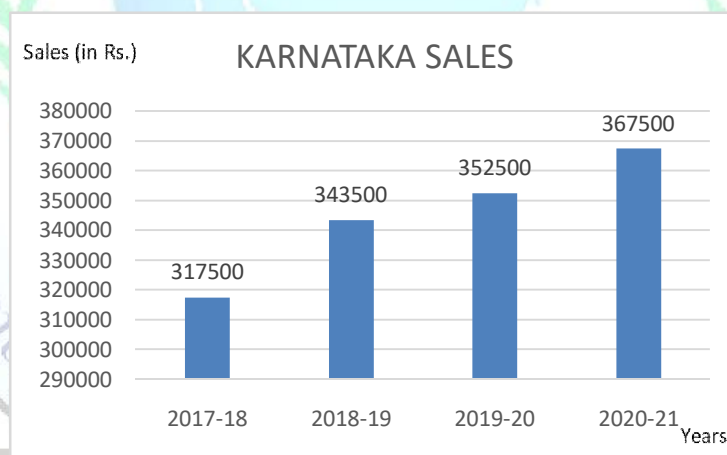
Graph No 3: Gujarat state sales analysis 2017-21:



Source: Sales Report, Selected Company

The rubber goods sales of Selected Company in Gujarat state reached to 2.75 lacs in 2020-21 from 1.3 lacs in 2017-18. It shows a dip by 26.9% in year 2018-19 and then gradual increase till 2020-21. The graph shows the change in sales of Selected Company in last 4 years with respect to demands from customers in Gujarat state.

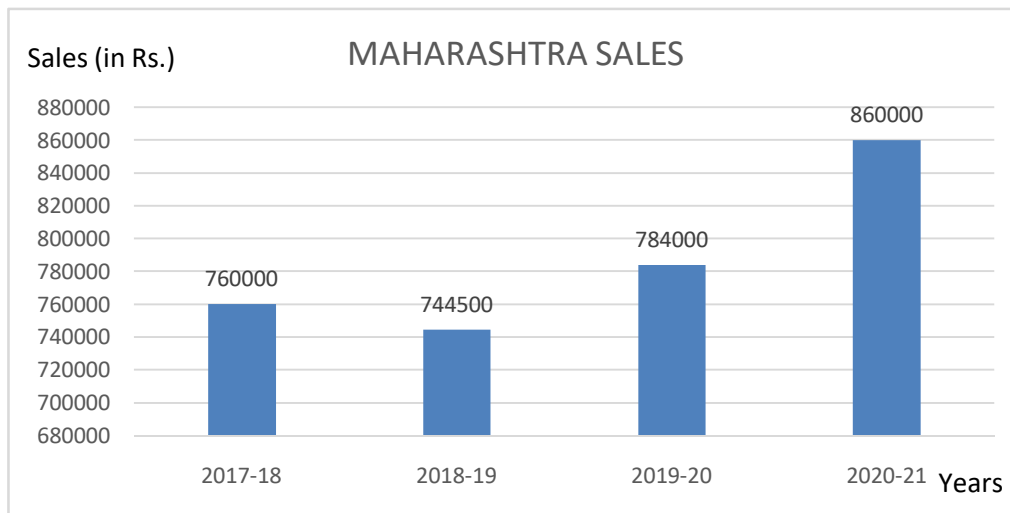
Graph No 4: Karnataka State sales analysis 2017-21.



Source: Sales Report, Selected Company

The graph shows growth in sales of Selected Company in Karnataka state in last 4 years with constant increase. The rubber goods sales of Selected Company reached to 3.67 lacs in 2020-21 from 3.17 lacs in 2017-18. It shows strong growth over the years with an average 3.5% change. In 2020-21 it reached a milestone of 3.67 lacs.

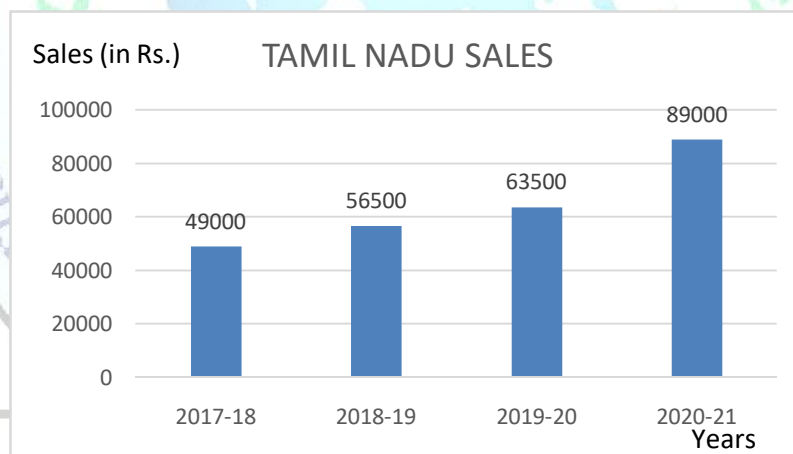
Graph No 5: Maharashtra state sales analysis 2017-21.



Source: Sales Report, Selected Company

The rubber goods sales of Selected Company in Maharashtra state reached to 8.6 lacs in 2020-21 from 7.6 lacs in 2017-18. It shows a dip by 2.03% in year 2018-19 and then gradual increase till 2020-21. The graph shows the change in sales of Selected Company in last 4 years with respect to demands from customers in Maharashtra state.

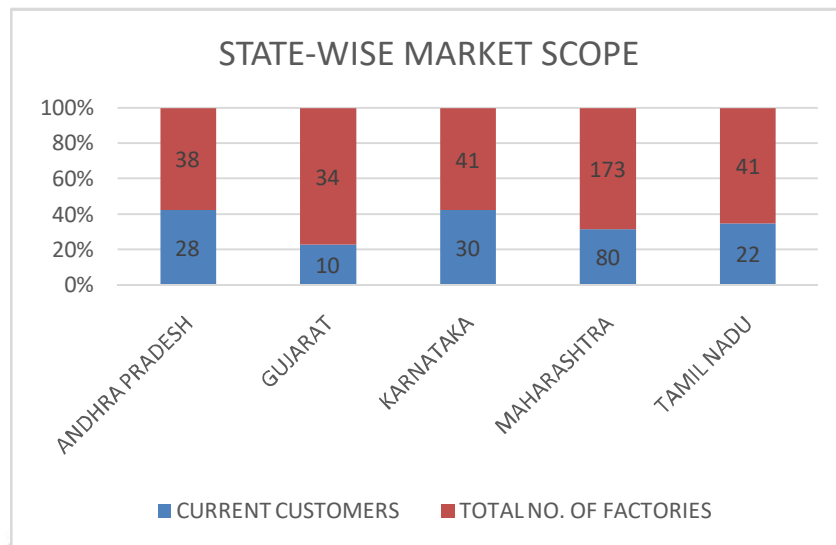
Graph No 6: Tamil Nadu state sales analysis 2017-21.



Source: Sales Report, Selected Company

The graph shows growth in sales of Selected Company in Karnataka state in last 4 years with constant increase. The rubber goods sales of Selected Company reached to 0.89 lacs in 2020-21 from 0.49 lacs in 2017-18. It shows strong growth over the years with an average 17% change. In 2020-21 it reached milestone of 0.89 lacs.

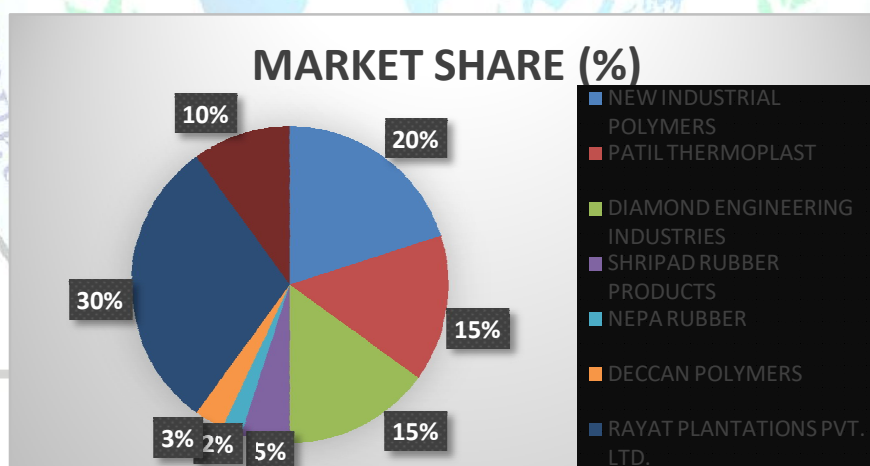
Graph No 7: State-wise market scope analysis.



Source : Annual reports, Indian Sugar Mills Association

Above graph shows potential customers in states of Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu. The number of customers in respective states are mentioned in the above graph. There is 26.3% scope of market growth in Andhra Pradesh whereas 70.58% in Gujarat, 26.82% in Karnataka, 53.75% in Maharashtra and 46.34% in Tamil Nadu.

Graph No 8: Market Share in Maharashtra State (Sugar Industry)



Source: Annual reports, Sugar Diary

RPPL dominates market with highest 30% share while New Industrial Polymers holds second position with 20% giving strong competition. Patil Thermoplast and Diamond Engineering Industries with 15% share each is also challenging the competition. Selected Company is challenging with 10% of market share. Shripad Rubber Products, Deccan Polymers, Nepa Rubber trying to to increase their market share with respectable contribution.

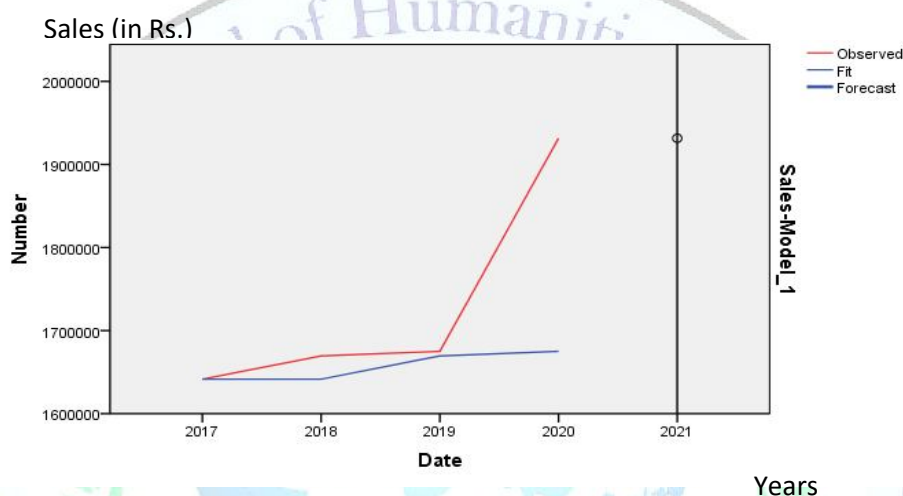
Statistical Analysis of the data:

Time Series Analysis-

From a statistical point of view, time series are regarded as recordings of stochastic process which vary over time. Researcher will concentrate on the case where observations are made at discrete equally spaced times $1, 2, \dots, T$. We assume that the time series values we observe are the realizations of random variables Y_1, Y_2, \dots, Y_T which are part of a stochastic process $\{Y_T : T \in Z\}$. In other words, Y_1, Y_2, \dots, Y_T are random variable whose value cannot be predicted with certainty. Each realization of is assumed to be the result of a signal and a noise term:

$$Y_T : \mu_T + \epsilon_T$$

Graph No 9: Total Estimated Sales Analysis 2021-22.



Source: IBM SPSS Time Series Modeler

Observations:

1. Selected Company reached 19.31 lacs of sales target in 2020-21 witnessing spectacular growth in last 10 years.
2. Products sales has increased from 16.41 lacs in 2017-18 to 19.31 lacs in 2020-21 shows the industry’s performance in the sector of sugar industry.
3. Irregularity in the number of sales can be seen since past 4 years in regards with sales at Andhra Pradesh.
4. A sudden decline of sales in Gujarat can be observed during year 2018-19, but gradual increase can be seen after it. (ref. Graph 4.3)
5. Gradual growth can be seen over the years in sales at Karnataka.
6. A slight decline in sales at Maharashtra can be observed during year 2018-19, but remarkable increase in sales can be seen after it.
7. Gradual growth can be seen over the years in sales at Tamil Nadu.
8. Huge difference between current number of customers and potential customers can be seen in Gujarat state. There is near about 70.59% potential market in Gujarat.
9. It can be observed that the company has good market share in sugar industry sector Maharashtra

region. In last 4 years, sales in Maharashtra region have shown good growth with growth of 13.1%.

10. Great market holding can be seen in Andhra Pradesh region with near to 74% of market.
11. Karnataka too shows promising market holding of 74% of market and has constant growth in sales.
12. As total number of sugar industries in Tamil Nadu are less total there are certain limitations in sales, yet sales in Tamil Nadu show constant increment in past 4 years.
13. Market holdings of various industries in Maharashtra supplying rubber parts to sugar industries shows Selected Company holds 10% of total market share..

Suggestions:

Establishing Customer Relation Management (CRM) Department may act as an additional reinforcement to current structure of company for enhancement of sales. Conducting regular visits to sugar industries may lead to increase in customer base. Approaching industries other than sugar industry may lead to expansion of customer base and improved market growth.

Conclusion:

Selected Company has been in business with sugar industries for supplying rubber spare parts for past 28 years. The industry shows substantial growth over the years focusing on quality products and customer satisfaction. Collected data has been analyzed and interpreted accordingly, presenting closer view to current sales scenario of the company. Predictive analysis using time series analysis method has been conducted to forecast future sales enabling company to set a valid target to work upon during upcoming years. Considering the time series result, it seems that the company has capacity to expand and capture the market over the states as a leading manufacturer of rubber spare parts, expanding in various industries.

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