Int. Journal of Management and Development Studies 6(5): 23-26 (2017)
ISSN (Online): 2320-0685. ISSN (Print): 2321-1423
Impact Factor: 0.715

Analysis of Vessel and Container Management

Annie Angel Mercy. D[1] and V. Rajalakshmi[2]

Abstract: *Tuticorin being one of the twelve major ports in the country continues to achieve record-high cargo traffic. As the first Indian port to receive ISO 9002 certification, it registers an average annual growth of 10 percent, the best in the industry. When many other ports suffer from work disruptions due to man made and natural factors, Tuticorin, conversely, offers round-the-clock service throughout the year. This study the management of vessels and containers with special reference to the Port of Tuticorin. In that, it for the most part depends upon secondary data. The data is provided by a multitude of agencies involved in shipping and maritime trade including the Port. In summary, although every type of cargo contributes to the cause of vessel, cargo and container traffic in the Port in its characteristically distinctive manner, the pattern is steady and homogeneous overall.*

Keyword: Tuticorin Port, Vessels, Management, Containers.

Introduction

Tuticorin being one of the twelve major ports in the country continues to achieve record-high cargo traffic. As the first Indian port to receive ISO 9002 certification, it registers an average annual growth of 10 percent, the best in the industry. When many other ports suffer from work disruptions due to man made and natural factors, Tuticorin, conversely, offers round-the-clock service throughout the year. At present it handles about 19 million tonnes of cargo a year. Although its serviceability has excelled these years, stagnation in container traffic, drop in export of traditional items such as construction materials, timber and salt, and insufficient overall draught for Mainline Vessels continue to affect vessel, cargo and container movement of the Port. The Sethusamuthram Project will make Tuticorin a nodal port and accelerate industrial growth around the hinterland and beyond. This is a ship canal project to make the seaway from Palk Strait until the southern tip of Gulf of Mannar navigable. This sea route as of now is dangerous for ships, for it is very shallow, full of shoals, and abundant with coral reefs. Now all west bound ships from ports in the East Coast go circuiting Sri Lanka, thereby traversing more than 400 nautical miles with over 36 hours of shipping time. Besides bringing about considerable savings on fuel and navigable time to the Indian ships, this project will fetch foreign exchange earnings by way of toll collections from foreign ships. Yet, environmental considerations, fishing activities of villages along the coastline, and sea erosion are shown as hindrance factors that must be looked into before implementing the project.

Thus the Port of Tuticorin has a long way to go before it is on par with world class ports such as Shanghai, Hamburg, Singapore, and the like as far as vessel and container booking is

[1] Assistant Professor in Commerce, Pope's College, Sawyerpuram.
[2] Associate Professor and Head, Department of Commerce, Sarah Tucker College, Palayamkottai.
Corresponding author: Annie Angel Mercy. D can be contacted at:
Any remaining errors or omissions rest solely with the author(s) of this paper

concerned. Here, developments within the country including political environment, financial and industrial policies, corporate inefficiency and, ambivalently, its dominance, and developments at the international stage including shift in balance of power, transformation in the mix of products of export and import, and removal of quota systems have significantly affected port operations with respect to vessel and container movement. They are advantageous to the creamy layer of the industry, but disadvantageous to a large section of small and medium industries and the society as a whole. For example, Tuticorin port's balance sheets were fattened by thermal coal imported from Indonesia. The coal is fed to the power generating stations in Tuticorin district. Having overwhelmed by the coal volume and revenue, the Port adjusted itself to treating coal as its cash cow. However, coal handling, over time, caused to eat on the plurality of items handled in the Port. Now thermal coal has gone to the extent of being the sole breadwinner for the Port. Coal sustains the port as other products get sidelined, but once coal ceases to feed the Port, it has the danger that most port operations too cease.

In addition, modernisation initiatives at the Port in an attempt to allow private participation and to make the procedures transparent and controllable have contributed, either positively or negatively, to the condition of vessel and container booking. For example, many items of export and import, which once were handled either as bulk cargo or break bulk cargo, are now containerised. That is, items such as construction materials, timber and salt are now transshipped only through containers. Such a condition has enormous implications for the service channels, price structure, terms of commerce, competitive facade, and the like of the outer wings of the port logistical environment including shippers, shipping agents, transporters, contractors, and even Port employees and workers. Therefore realising its strategic importance, the Port, as a facilitator, has contributed to enhance the logistics in the aspects of process, technology, infrastructure and administration. It is now reflected in quick and efficient cargo handling, low vessel cutoff times, reduced bottlenecks, lower tariff, and invisible cost benefits. However, unstable global environment, unfair industrial policies, uncertain monsoon pattern, evaporation of the once balanced economic system, loss of social harmony, and many other factors continue to challenge the Port operations. In this regard, this chapter is devoted to the analysis of vessel and container booking with special reference to the Port of Tuticorin. Analysed in subsections here are the classification of vessels and containers, the booking process, role of the Port, recent developments, implications of inconsistent pricing and operations by Vessel and Container Operators, and the dependence pattern of vessel and container traffic at the Port.

Analytical Framework

This study the management of vessels and containers with special reference to the Port of Tuticorin. In that, it for the most part depends upon secondary data. The data is provided by a multitude of agencies involved in shipping and maritime trade including the Port.

Now the performance indicators of Tuticorin port are presented in the table. Here, Break Bulk cargo is handled in the port at two areas namely Zone A and Zone B. Likewise the quantity handled is provided as two separate entries in the performance report. However for analytical convenience, the figures are merged together.

Table 1: Performance Indicators of Tuticorin Port for Five Years

Indicator	2010-11	2011-12	2012-13	2013-14	2014-15
1. Average Pre-Berth Detention (Days)					

Liquid Bulk	0.35	0.61	0.26	0.04	0.04
Dry Bulk	0.13	0.04	0.02	0.19	0.01
Conventional	0.88	1.37	0.82	0.72	0.60
Containers	0.00	0.00	0.00	0.00	0.00
Break Bulk	0.49	1.33	0.56	0.05	0.08
2. Average TRT (Days)					
Liquid Bulk	2.57	2.67	2.72	2.65	2.12
Dry Bulk	3.68	4.27	4.53	4.42	3.96
Conventional	4.76	5.90	5.36	4.97	4.26
Containers	1.19	1.24	1.14	1.11	1.08
Break Bulk	3.99	4.76	1.13	3.36	2.99
3. Per Ship Berth Day Output (Tonnes)					
Liquid Bulk	3,611	3,942	3,623	3,230	3,666
Dry Bulk	11,696	10,411	10,597	11,225	11,988
Conventional	6,786	6,068	7,035	8,661	9,879
Containers	19,436	22,079	24,294	23,814	21,535
Break Bulk	1,744	1,951	1,741	2,016	2,364
4. No. of Vessels Handled					
Liquid Bulk	214	226	221	184	195
Dry Bulk	123	130	141	132	134
Conventional	275	295	267	260	321
Containers	379	365	351	399	496
Break Bulk	411	430	312	184	234
5. Tonnage Handled (Lakh Tonnes)					
Liquid Bulk	16.88	17.64	19.09	14.89	15.06
Dry Bulk	52.38	57.91	65.88	62.6	63.83
Conventional	77.09	86.20	83.26	94.98	119.79
Containers	81.69	92.27	93.72	101.29	110.34
Break Bulk	29.23	27.04	20.65	12.66	15.12

Source: Performance Indicators, Port of Tuticorin, 2015.

Table 1 shows that the growth performance of Tuticorin port is steady. It further shows that over the years, either the bottlenecks related to vessel, container and cargo handing have got reduced or the capacity augmented to fairly achieve the target or projection. Similarly the table does not show any undue deterioration in performance over the period. More importantly, the table reveals the higher efficiency inherent in handling container cargo. Indicators pertaining to containers are far better than any other. This affirms that cargo handling by containers is the most efficient form.

In this regard, the structural relationship among the performance indicators is analysed by statistical tools. This is done first by a Two-way Analysis of Variance (Anova), and then by a Multiple Variable Analysis of Variance (Manova). While the Two-way Anova shows the variability of rows and columns of individual performance indicators, Manova on the other hand shows the interplay of the entire variable set. Even more, while Anova sees the strength of association between individual parameters, Manova sees the strength of association from the overall model's perspective. This way, both the tests should validate each other. First, the results of Two-way Anova are presented in the table.

Table 2: Two-way Anova Tests for the Performance Indicators

Indicator	Source of Variation	df	Mean Square	F	p > F	Result
Average Pre- Berth Detention	Row	4	0.63	12.11	0.0001	Row and Column Significant.
	Column	4	0.21	4.00	0.0196	
Average Turn-round Time	Row	4	11.23	24.70	0.0000	Row Significant, Column Insignificant.
	Column	4	0.60	1.32	0.3048	
Per Ship Berth Day Output	Row	4	32.44×10^7	245.61	0.0000	Row Significant, Column Insignificant.
	Column	4	14.83×10^5	1.12	0.3805	
No. of Vessels Handled	Row	5	69,652.35	24.81	0.0000	Row Significant, Column Insignificant.
	Column	4	2,152.37	0.77	0.5594	
Tonnage Handled	Row	5	8,372.00	105.77	0.0000	Row Significant, Column Insignificant.
	Column	4	96.49	1.22	0.3340	

In the table 2, while row wise associations are strong across the six performance indicators, column wise associations are weak. Thus, various types of cargo the Port handles associate strongly with one another to contribute to the performance in a year. It means two things. One is that the handling effectiveness, or otherwise, of one type of cargo strongly affects the handling of the remaining cargo types, which ultimately bears upon port performance. Second, the combined efficiency of handling all these cargo types contribute to yearly performance in a strongly interdependent manner.

Conversely, year wise variations are insignificant in all indicators except Average Pre-Berth Detention. This reveals that the performance indicators are fairly stable and consistent over the years regardless of internal or external influence. This means that the chartering of vessel traffic and pursuant pattern of container and cargo movement have set in and stabilised over the years, almost like pre-specified contracts, with minimal deviation from the standard functional and operational routines. It moreover means that the Port is vigilant to see that its track of performance is neither disturbed nor tampered in by any internal or external force.

Conclusion

In summary, although every type of cargo contributes to the cause of vessel, cargo and container traffic in the Port in its characteristically distinctive manner, the pattern is steady and homogeneous overall. This should be confirmed by the multiple variable test. One word of caution with multiple variable tests is that within the segment and between the segment deviations in them will lead to forgo certain amount of accuracy. In addition, the assumptions of normality, homogeneity of variances, and ingrained weaknesses in its estimates such as degree of freedom, level of significance, and standard error lead to further loss of accuracy in the tests. Yet they show the interaction of variables in a comprehensive manner.

References

Port Statistics, United Nations Conference on Trade and Development, New York, 1971, Digitised and made Online, March 2005.

Leelavathi, D.S., "Industrial Relations in India, Challenges and Strategies", Southern Economist, Vol. 39, No. 6, July 2000.

"Freight Facts and Figures", Bureau of Transportation Statistics, US Department of Transportation, January 2014.