



**A STUDY ON SHIPPING LOGISTICS OPERATIONS BY
THE 3PL AND THE EXPORTERS WITH SPECIAL REFERENCE TO
TAMILNADU**

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ABSTRACT

The Logistics and Supply Chain management is the process of carrying the cargo from a component to another and delivering the goods on time to the customers. It involves effective and efficient flow and storage of goods in order to satisfy the demands of the end users. Shipping operation is one vital part in Logistics operations which covers the movement of goods in global markets and satisfying the requirements of customers globally. Researchers made an effort to review the logistics operation by the exporters and ended with very limited numbers of studies. Thus, researchers attempted to understand the international shippers, their operations and the problems faced by them with following objectives: a) To examine the shipping and logistics operations of the exporters, b) To understand the problems faced by the carriers (distributors), c) To understand the problems faced by the exporters and d) To examine the relationship between Frequency of exports and freight rates. The study is attempting to find the facts and it is **Descriptive Research**. The **primary data and secondary data** were collected for the study. The **sample size** of the study is determined as **104** and using **Simple random sampling technique**. A **structured questionnaire** has been used to collect the primary data from the selected samples. Statistical tools such as **Correlation Analysis, Chi Square and Descriptive Statistics**. The study is proposing the various problems and challenges faced by the carriers and exporters. The study found that Delay in delivery and damages in goods are the major problems faced by the exporters.

Keywords: Shipping Logistics, Problems faced by exporters, 3PL.

1. Introduction

A freight forwarder is a person or business that plans shipments for businesses or people to transport heavy orders from the producer or maker to the market or point of distribution. To make the flow of products easier, forwarders will get into a contract with a carrier. A forwarder is a specialist in supply chain management; they are not often carriers. To put it another way, a freight forwarder is the equivalent of a "travel agency" for the cargo sector provider of third-party (non-asset-based) logistics. To carry cargo ranging from unprocessed agricultural materials to manufactured commodities, a forwarder will enter into agreements with asset-based carriers.

Analyzing shipping and logistics from carriers, businesses, and individual customers is crucial.

Shipping logistics is the process that refers to the movement of goods involved in all inbound and out bound logistics for transportation of finished goods, raw material and through supply chain, from first-mile delivery and drayage to end customer shipments. Major threats faced by exporters are a) currency fluctuation b) trade barrier and regulations c) political instability d) shipping and logistics e) intellectual property theft and f) competition. Export plays a major role in Indian economy by considerably boosting the GDP of the nation, earning foreign cash, and providing employment opportunities, exporters play a critical role in the Indian economy. It also enhances the competitiveness of Indian businesses in global market.

This research is done in association with Blue Bharath Exim Pvt Ltd which works with home built ERP software solution known as B-accuracy developed by CEO of company Dr.K.S.Kamaludeen, based on his 20+ years of international business experience. This company along with its software came into market at mid of 2017 which supported global companies from Singapore, Brunei, Malaysia and Saudi. Today Blue Bharath support over 50+ companies globally with B-accuracy customized solution based on customer's requirements and suggestions.

1.1 OBJECTIVE OF STUDY

The Objectives of the study are as follows:

- To examine the shipping and logistics operations of the exporters
- To understand the problems faced by the carriers (distributors)
- To understand the problems faced by the exporters and to give suggestions to overcome the problems
- To examine the relationship between Frequency of exports and freight rates

1.2 SCOPE AND LIMITATIONS

The study helps to understand the problems faced by the exporters and distributors and helps them to overcome from those problems and the study enables to understand the shipping operations and factors that influence the frequency of the exports. The study is restricted only to Tamilnadu region and time period of the study is Dec 2022 – May 2023. The findings of the study are applicable and reflect to the maximum of the population which is in study area.

2. REVIEW OF LITERATURE

¹**Konstantinos Selviaridis, Martin Spring** (2007) demonstrates that 3PL research lacks a theoretical underpinning and is mostly empirical-descriptive in character. The primary methodology used is survey research, which reflects the positivist research heritage in logistics. It finds certain knowledge gaps and generates five ideas for more study. It implies that attention should be paid to more normative, theoretically informed, and

qualitative method-based investigations. Additionally, it makes the case for the need for more empirical study on third-party logistics services.

²Research of **Rohit Bhatnagar, Amrik S. Sohal** and **Robert Millen** focuses on three concepts that, in our opinion, will most affect how third party logistics services will be used in the future. The level of the use of third-party logistics services, the selection process for a supplier of contract logistics services, and the effect of using contract logistics services on the organisation are these constructions.

³**Vanelslander, Thierry** address the dearth of knowledge on the potential that impacts such tactics may have on the industry's operating circumstances. The major operators' geographic strategy up to 2006 are analysed, along with the functional areas where cooperation is sought. With the exception of PSA and HPH, it appears that the bulk of domestic ventures for container-handling operators are non-cooperative ones.

⁴**Hess, M.; Kos, S.; Lelekovic** propose a novel optimisation model for cargo handling operations aboard ships is proposed. The model's solution determines the structure of resources needed, as well as the minimal overall "in-port" expenses and minimum turnaround time for cargo operations.

⁵**Schumacher, Jens; Gschweidl, Manfred; Rieder, Mathias** states that an EU-funded initiative called EURIDICE focuses on the creation and application of fresh ideas in the field of intelligent cargo. By using dispersed mobile systems, EURIDICE aims to provide a platform for intelligent goods based on free and open standards. An overview of the architecture and important technologies will be given in this article.

⁶**Goldman, Carla** states that the movement of a load is conceptualized as a hopping process brought on by the transfer of load between nearby motors. In light of this, we investigate the circumstances in which cargo may exhibit bidirectional motion even when driven by motors with a single polarity. The dynamics of the group of interacting motors and cargos are mapped onto an asymmetric simple exclusion process (ASEP), which may be solved using the matrix ansatz developed by Derrida. This yields the global characteristics of the model in the long-time regime.

⁷**Korade, Matt** focuses on the security measures used through complete cargo screening at U.S. airports and marine ports. According to the report, screening will deter and prevent the entry of WMD into the nation. However, the Congress is divided over the problem-solving options due to a risk-based strategy. Additionally, the project's proposed implementation is expensive and endangers the security staff and detection technology.

⁸**Golicic, Susan L.** interpret's that over the past few years, air has become the preferred method of transport for cargo. But according to goods forwarders, there aren't enough resources to handle this cargo at significant domestic airports. Small and medium airports can thus enter or grow their activities in the air freight industry.

⁹**Sebastian (2008)** A Study on “Problems of Logistics Industry” . The objective of the study about the problem that faced logistics industry. He came to the conclusion that India's logistics sector has to improve its planning, and that experts already working in the sector need to brush up on a variety of crucial logistics and transportation concepts. He concluded by saying that there should be a careful balance between fundamental understanding and practical application.

¹⁰**Davis, Beth R (2006)**, a study on” Logistics service driven loyalty: an exploratory study”. The article concludes that increasing logistics customer service is a constant goal for businesses and demonstrates how supply chain connections may be a reliable source of competitive advantage for supply chain enterprises because of their capacity to obstruct current competitors. Suppliers are attempting to become more proactive with their clients and foresee their needs.

3. RESEARCH METHODOLOGY

The research is aimed to find the fact and hence it is Descriptive in nature. The sample size of the study is determined as 104 using the power analysis. Primary data and secondary data were used for the study. The primary data was collected from the exporters in Tamilnadu and secondary data was collected from various articles, thesis and research papers which are considered as authentic and reliable sources. A structured questionnaire was set and distributed for collecting the primary data. Simple random technique was adopted to select the samples among the population. Statistical tools such as Descriptive analysis and Chi Square and Correlation matrix were executed.

4. DATA ANALYSIS AND CONSTRUE

This research executed Descriptive Analysis, Factor, Chi Square and Correlation analysis for examining various variables which supports the framed objectives.

4.1 CHI SQUARE ANALYSES

Aim: Chi Square test executed to find the relationship between Frequency of Exports and Freight Rates.

H01: There is no significant relationship between the variables.(Frequency of export and Freight rates)

CHI-SQUARE Table 4.1.1

		Count				
		Your opinion about freight rates.				
		1	2	3	4	5
Your frequency of	1	0	1	5	0	1
	2	3	2	5	1	1

exporting.	3	2	2	25	8	11
	4	1	4	20	6	6
Total		6	9	55	15	19

Table 4.1.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.062 ^a	12	.038
Likelihood Ratio	13.310	12	.347
Linear-by-Linear Association	1.605	1	.205
N of Valid Cases	104		

Source: SPSS Output

Inference

The above table shows the result of Chi Square analysis. It is inferred from the table that, Pearson Chi Square value is 15.062. The P value is found to be 0.038 which is < than 0.05. Hence it is concluded to reject the Null Hypothesis. Therefore it states there freight rate influences the frequency of the exports

4.2. DESCRIPTIVE STATISTICS

Aim: Descriptive Statistics shows the mean (average) of the list of variables (Problems faced by Carriers)

Table No: 4.2.

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Delivery Delay	104	4	1	5	3.15	1.419
Damaging of Packages	104	4	1	5	3.14	1.347

Frequent Rise in Forwarding Cost	104	4	1	5	3.10	1.542
Lack of Proper Communication	104	4	1	5	2.97	1.438
Last Minute Bulk-Order Priority	104	4	1	5	2.64	1.269
Valid N (listwise)	104					
<i>Source: SPSS Output</i>						

Inference

The above table shows the Average of the variables which are the problems faced by carriers in exporting business. From the result of descriptive statistics, the 1st rank is obtained for Delivery delay with mean value of (Mean =3.15 and SD= 1.419), 2nd and 3rd rank is obtained by Damaged Packages and Frequent rise in Forwarding Cost with mean values of (Mean value for Damaged Packages = 3.14 and SD=1.347), (Mean value for Frequent rise in Forwarding cost = 3.10 and SD= 1.542) respectively. It is also observed that, the least bothered problem faced by the carriers is Last minute bulk orders which they are not able to manage, with the mean value (Mean =2.64 and SD=1.269).

4.3 CORRELATION MATRIX

AIM: Correlation Analysis is executed to examine the relationship considering the variables *Problems faced by the Carriers and *Problems faced by the Exporters Table

TABLE NO: 4.3.1

	Deliv ery Delay	Dam agi ng of pack ages	Freq ue nt rise in forw ard ing cost	Lack o f proper commu nicat ion	Bul k- Ord er Pri ori ty	Del a y in recei vi ng the goods	Dam aged pack ages	Compe ti tive pric ing o f forward ing cost	Lack of prope r comm uni cation	Pay me nt dela ys
Delivery Delay	1.000	-.200	-.215	-.321	-.271	-.128	.053	.149	.084	-.185
Dama ging of package	-.200	1.000	-.287	-.228	-.237	.055	.060	-.045	-.135	.075

s										
Frequency of forwarding cost	-0.215	-0.287	1.000	-0.353	-0.265	-0.099	0.109	0.019	0.085	-0.123
Lack of proper communication	-0.321	-0.228	-0.353	1.000	-0.107	0.160	-0.123	-0.119	-0.032	0.136
Bulk-Order Priority	-0.271	-0.237	-0.265	-0.107	1.000	0.019	-0.110	0.001	-0.017	0.111
Delay in receiving the goods	-0.128	0.055	-0.099	0.160	0.019	1.000	-0.255	-0.262	-0.241	-0.206
Damage to packages	0.053	0.060	0.109	-0.123	-0.110	-0.255	1.000	-0.196	-0.272	-0.261
Competitive pricing of forwarding cost	0.149	-0.045	0.019	-0.119	0.001	-0.262	-0.196	1.000	-0.341	-0.343

Lack of proper communication	.084	-.135	.085	-.032	-.017	-.241	-.272	-.341	1.000	-.113
Payment delays	-.185	.075	-.123	.136	.111	-.206	-.261	-.343	-.113	1.000

Inference

The above is inferred as the result of correlation matrix for the variables such as problems faced by carriers and problems. It shows the degree of correlation among the variables. It is inferred that, delivery in delay has negative correlation with damaging of packages in 3PL perspective (-0.20), frequent rise of forwarding cost (-0.215), lack of proper communication (-0.321), last minute bulk order priority (-0.271), delay in receiving of goods (-0.128), payment delays (-0.185) and Delivery delay has positive correlation with damaged packages in exporter's perspective (0.53), Competitive pricing for forwarding cost (0.149) and Lack of proper communication (0.84).

The above table resulted as Damaging of packages in 3PL has negative correlation with delivery delay(-0.200), Frequent rise in forwarding cost(-0.287), Lack of proper communication(-0.228), Last Minute Bulk- Order Priority(-0.237), Competitive pricing of forwarding cost(-0.45) and Damaging of packages in 3PL has positive correlation with Delay in receiving of goods(0.055), Damaged packages in exporter(0.60) and payment delay(0.75).

The above table resulted Frequent rise in forwarding cost has negative correlation with Delivery Delay(-0.215), Damaging of packages(-0.287), Lack of proper communication(-0.353), Last Minute Bulk- Order Priority(-0.265), Delay in receiving the goods(-0.099) and Payment delays(-0.123) and Frequent rise in forwarding cost has positive correlation with Damaged packages in exporter(0.109), Competitive pricing of forwarding cost(0.019), Lack of proper communication(0.085).

The above table resulted that Lack of proper communication has negative correlation with Delivery Delay (-0.321), Damaging of packages (-0.228), Frequent rise in forwarding cost(-0.353), Bulk- Order Priority (-0.107), Damaged packages(-0.123), Competitive pricing of forwarding cost (-0.119), Lack of proper communication(-0.032) and as Lack of proper communication has positive correlation with Delay in receiving the goods(0.160) and Payment delays(0.136).

The above table resulted that Bulk- Order Priority has negative correlation with Delivery Delay(-0.271), Damaging of packages(-0.237), Frequent rise in forwarding cost(-0.265), Lack of

proper communication(-0.107), Damaged packages(-0.110), Lack of proper communication(-0.017) and Bulk- Order Priority has positive correlation with Delay in receiving the goods(0.019), Competitive pricing of forwarding cost(0.001) and Payment delays(0.111).

The above table resulted that Delay in receiving the goods has negative correlation with Delivery delay (-0.128), Frequent rise in forwarding cost (-0.099), Damaged packages (-0.255), Competitive pricing of forwarding cost (-0.262), Lack of proper communication (-0.241) and Payment delay (-0.206) and Delay in receiving of goods has positive correlation with Damaging of goods (0.55), Lack of proper communication in 3PL (0.160) and Bulk order priority (0.019).

The above table resulted that Damaged packages in exporter has negative correlation with Lack of Proper Communication (-0.123), Bulk Order Priority (-0.110), Delay in receiving the goods (-0.255), Competitive Pricing of Forwarding cost (-0.196), Lack of Proper communication in 3PL (-0.272) and Payment delay (-0.261) and Damaged Packages has positive correlation with Delivery Delay(0.53), Damaging of packages(0.06), Frequent rise in forwarding cost(0.109).

The above table resulted that Competitive pricing of forwarding cost has negative correlation with Damaging of packages (-0.45), Lack of proper communication(-0.119), Delay in receiving the goods(-0.262), Damaged packages(-0.196), Lack of proper communication(-0.341) and Payment delays(-0.343) and Competitive pricing of Forwarding Cost has positive correlation with Delivery delay (0.149), Frequent Rise in Forwarding Cost (0.019), Bulk Order Priority (0.001).

The above table resulted that Lack of Proper Communication has negative correlation with Damaging of Packaging in 3PL(-0.135), Lack of Proper Communication in 3PL(-0.032), Bulk- Order Priority(-0.17), Delay in receiving the goods(-0.241), Damaged packages(-0.272), Competitive pricing of forwarding cost(-0.341), Payment delays(-0.113) and Lack of Proper Communication has positive correlation with Delivery delay(0.84) and Frequent Rise in Forwarding Cost(0.85).

The above table resulted that Payment delay has negative correlation with Delivery Delay(-0.185) Frequent rise in forwarding cost(-0.123), Delay in receiving the goods(-0.206), Damaged packages(-0.261), Competitive pricing of forwarding cost(-0.343), Lack of proper communication(-0.113) and Payment Delay has positive correlation with Damaging of packages(0.075), Lack of Proper Communication(0.136), Bulk Order Priority (0.111).

FINDINGS

The researchers attempted to analyze shipping logistics operation by the 3PL and the exporters with special reference to Tamilnadu. Various factors pertaining to the shipping logistics operation by the 3PL and the exporters were circulating to understand the logistics operation by 3PL and exporters. The results of various tests are discussed further.

I. Findings of Chi-Square: The result of Chi-square analysis reveals that there is no significant variance between Frequency of export and Freight Rates. **II. Findings of Descriptive**

Statistics: The results of descriptive analysis conclude that Delivery Delay is the first ranked problem by the 3PL operators and followed by, Damaging of Packages and Frequent rise in Freight cost obtained second and third place. **III. Findings of Correlation Matrix:** The result of correlation matrix reveals that a) Delivery Delay is negatively correlated with Damaging of packages, b) Frequent Rise in forwarding cost is negatively correlated with Delay in Receiving of Goods and c) Lack of Proper Communication is negatively correlated with Bulk Order Priority, d) Frequent Rise in Forwarding Cost is positively correlated with Competitive Pricing of Forwarding Cost, e) Payment Delay is positively correlated with Lack of proper communication, f) Damaged packages is positively correlated with Frequent Rise in Forwarding Cost.

CONCLUSION

The researchers conducted this study to gain better understanding in shipping logistics operation by 3PL and exporters. The study analyzed the problems faced by both 3PL and exporters and how each problem affects the logistics operation in particular problem. From the above results of the study delay in delivery is found to be the mostly faced problem and 3PL players can identify the causes for the delay and it is suggested to 3PL players to take measures to eradicate the causes for delay in deliveries. It is observed from the study that, Frequency of exports and freight rates has significant association which states that freight rates influences the determination of number of exports done. This study also depicts that there is negative correlation between Delivery Delay and damaging of package, frequent rise in Forwarding cost and Delay in receiving of goods which states that, whenever there is an increase in delay in delivery, there exist decrease in the aspect of damages. Delivering the goods on time reduces the damages.

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