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Determinants of Extra Charges for Container Shipments: A Case Study of Nexus Zone Logistics

Zety Shakila Binti Mohd Yusof, Muhammad Adib Bin Ishak, Hajah Fatimah Binti Hussein

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***Abstract*—**The international shipping business is related to numerous controls or regulations of export and import shipments. It is costly and time consuming, and when something goes wrong or when the buyer or seller fails to comply with the regulations, it can result in penalties, delays, and unexpected costs etc. For the focus of this study, the researchers have selected a local forwarder that provides forwarding and clearance services, Nexus Zone Logistics. It was identified that this company currently has many extra costs to be paid including local and detention charges, which negatively impacts the flow of income and reduces overall stability. Two variables have been identified as factors of extra charges; loaded containers entering the port by exceeded closing time and late delivery of empty containers to the container yard. This study is a qualitative in nature and the secondary data collected was analyzed using self-administered observation. The findings of this study were covered by one selected case for each export and import shipment between July and December 2014. The data were analyzed using frequency analysis based on tables and graphs. The researcher recommends Nexus Zone Logistics impose a 1% deposit payment per container for each shipment (export and import) to its customers.

***Keywords*—**International shipping, export and import, detention charges, container shipment.

I. Introduction

NEXUS Zone Logistics provides freight forwarding and clearance services. Currently, the company has to pay numerous extra costs, such as local and detention charges, which have impacted its income flow that is not continuously stable due to the profit imbalance at Nexus Zone Logistics. The effectiveness of Nexus Zone Logistics depends on their customers and hauliers performance in the movement of goods. For the end of each year, Nexus Zone Logistics received a lot of export and import shipment orders. Most of the shipments will be transported by containers and most of the reasons were due to the clearance of stock or seasonal demands by the end of each year.

The high number of container shipment orders has resulted in disruptions and delays in the movement of containers. If containers are late to enter the port and exceed the time given, these export shipments can be charged local charges, such as additional closing time. Meanwhile, containers for import shipment will also be charged with detention charges if the empty container had been sent late to the container yard.

Zety Shakila Binti Mohd Yusof, Muhammad Adib Bin Ishak, and Hajah Fatimah Binti Hussein are with the Politeknik METrO Johor Bahru (phone: 6073358851/52; fax: 6073358854; e-mail: zetyshakila@ pmjb.edu.my, adibishak05@ gmail.com, fatihuss@yahoo.com).

Every company wants to reduce or minimize any costs incurred. Extra local charges will affect the profit gain for every forwarding company.

Local charges are usually issued by port operators such as Johor Port and Pelabuhan Tanjung Pelepas. The local charges may be varying depend on different cases. Furthermore, for import shipments, if an empty container is unable to reach container yard within the stipulated time, the shipping line may issue detention charges to the importer (customer).

The detention-free time period depends on the agreement between the shipping line and exporter or importer (customer). Usually, the exporter or importer (customer) who liaised with Nexus Zone Logistics will be granted a five-day detention-free time period.

There are two objectives that need to be revealed by this study. The first objective is to review local charges that may be incurred after the closing time. This is to ensure monthly profit stability for Nexus Zone Logistics and achieve a healthy profit margin at the end of each year. The second objective is to review the detention charges of the container import shipments that may be incurred after free time is given by the shipping line. Due to that, extra charges will be levied on such containers. Besides that, every company wants to minimize costs to maintain profit stability.

II. Literature Review

A. Export and Import Defined

According to definition of terms in [1], export could be defined as a function of international trade whereby goods produced in one country are shipped to another country for future sale or trade. It could be said that the more a country exports, the more production, jobs and revenues it could generate. Further, the definition of import in [2] is goods or services brought into one country from another. It is important for businesses and consumers as they gain benefit from locally produced products with imported components as well as other products that are imported into the country.

B. Free Time and Detention

1. Free Time

Based on [3], "free time" is generally used in the industry as a period of time which no demurrage or detention charges will be applied for the use of a container, in addition to basic freight costs. Therefore, customers who are involved in export and import shipments need to have efficient and strategic supply chain activities to avoid demurrage or detention charges within the free time given.

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2. Detention

Detention is a charge to the shipper for the use of liners equipment after the expiration of the free time. In [3], detention for exports begins when the exporter picks up a container from the shipping line facility and ends when the exporter presents the loaded container for export at the terminal. However, detention for imports generally begins when the importer picks up the container from the terminal and ends when the container is returned empty to a location as instructed by the liners. Container detention charges are imposed by shipping lines for containers kept beyond the assigned "free time" and not returned to the designated location within that period. "Free time" varies for each shipping line, but generally ranges from seven to 10 calendar days (including public holidays and weekends) depending on the type of container used.

III. Research Framework

As per the research framework that had been developed, the dependent variable for this report is the extra charges for container shipments. It means that the exporter or importer (customer) will bear the extra charges when each of the stated independent variables has occurred.

The scenario for export shipment was when loaded containers enter the port before closing time; there will be no extra local charges. However, if the containers had exceeded the closing time, the local charges will be charged to the exporter (customer).

A different overview for import shipment, after the cargoes have been unloaded from the containers, the empty containers must been sent to the container yard within the five-day free time given by the liners. If the importer (customer) fails to do so, there will be a risk of detention charges being applied.

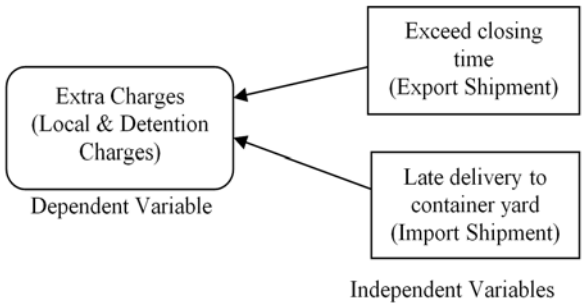


Fig. 1 Research Framework

IV. Research Methodology

This research is conducted to identify the determining factors of extra charges for container shipments at Nexus Zone Logistics. This study is qualitative in nature. Under this type of research design, secondary sources are used such as selected shipping line booking confirmation, invoices from port operators for local charges and invoices from selected shipping lines for detention charges.

The target population of this study is focusing on the exporter and importer (customers) of Nexus Zone Logistics. The sample sizes were selected using stratified random sampling. This is because there were many export shipments that involved cargoes entering into port which exceeded closing time and import shipments that involved empty containers being sent late to the container yard.

Secondary data were data collected by someone other than the user. Common sources of secondary data for social science include censuses, surveys, organizational records and data collected through qualitative methodologies or qualitative research. [4]. Based on this research, the secondary data was gained from selected shipping line booking confirmations, invoices from port operators for local charges and invoices from selected shipping lines for detention charges.

All secondary data were analyzed using self-administered observation. The results are in the form of frequency analysis and will be based on six months of export and import shipments between July and December 2014.

V. Results Analysis

Within a month, the valid export shipments take place every week (four weeks). The researcher has selected the liner booking confirmation [5] that contributes the estimated time delivery (ETD) of the shipments randomly among the four weeks in each of the selected months (July until Dec. 2014).

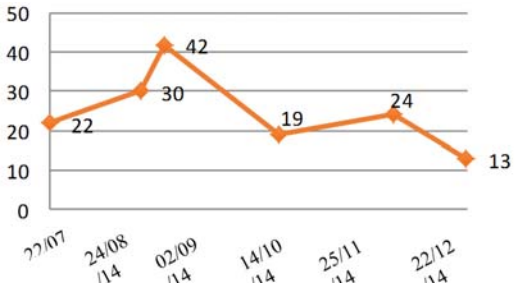


Fig. 2 Volume of Containers per Liner Booking Confirmation

Based on Fig. 2, shipments with an estimated time departure (ETD) early in the month of September 2014, contributed the highest volumes of 42 loaded containers per selected shipping line booking confirmation. Meanwhile, shipments with an estimated time departure (ETD) in the month of December 2014, contributed the lowest volume of 13 loaded containers per selected shipping line booking confirmation. Therefore, it proves that the selected exporter (customer) of Nexus Zone Logistics has a non-constant volume of loaded containers to be shipped out every month.

Data in Fig. 3 has been analysed by the researcher based on [6], showing invoices of local charges for export shipments being issued by the port operator to Nexus Zone Logistics. These data were synchronized with selected shipping line booking confirmations which had been previously analyzed. The containers were charged local charges due to entering the gates of the port after closing time. The amount of RM 45.00 is charged for additional loading time for each of the late containers. Based on the findings, the highest local charges for containers export shipment was in the month of September

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2014 with a record of 13 containers (13 x RM45.00 = RM585.00).

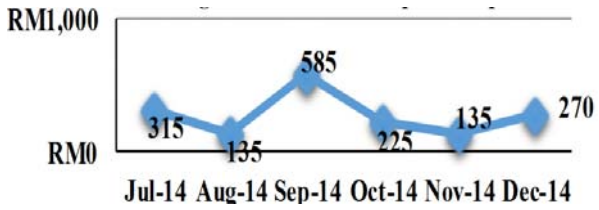


Fig. 3 Local Charges for Container Export Shipments

Further details on exceeding closing time will be analyzed based on the highest local charges. As per the 13 containers in September 2014, based on the selected shipping line booking confirmation, the estimated time departure (ETD) for the containers export shipment was on 02nd Sept 2014. Meanwhile, the closing time for this shipment was at 15:00 on 1st Sept 2014.

TABLE I
TIME DIFFERENCES (ACTUAL TIME-IN VERSUS CLOSING TIME) OF LATE CONTAINERS

No.	Time –in (enter Johor Port)	Time Differences (after closing time)
1	01/09/2014 17:00 pm	2 hours
2	01/09/2014 17:50 pm	2 hour 50 minutes
3	01/09/2014 19:09 pm	4 hours 09 minutes
4	01/09/2014 19:26 pm	4 hours 26 minutes
5	01/09/2014 19:27 pm	4 hours 27 minutes
6	01/09/2014 19:29 pm	4 hours 29 minutes
7	01/09/2014 19:30 pm	4 hours 30 minutes
8	01/09/2014 19:46 pm	4 hours 46 minutes
9	01/09/2014 19:46 pm	4 hours 49 minutes
10	02/09/2014 02:49 am	11 hours 49 minutes
11	02/09/2014 02:50 am	11 hours 50 minutes
12	02/09/2014 02:53 am	11hours 53 minutes
13	02/09/2014 02:54 am	11hours 54 minutes

Based on the time stated in the invoice local charges, the containers entered the port one by one after 15:00, as shown in Table I.

It can be concluded that the exporter (customer) provided the loaded containers that need to be shipped out of their factory at the last minute. Nexus Zone Logistics experienced this situation continuously, and it put them at risk of bearing the extra charges by making an early payment to the port operator before they charge back to the exporter (customer).

For import shipments, usually the customer who has liaised with Nexus Zone Logistics will be provided with a five-day free time period with no detention charges. The free days commence on the day the haulier collects the loaded containers from the port to the factory until the day when the empty container is returned from the factory to the container yard. If the importer (customer) returns the empty container exceeding the free time given, they will bear the detention charges.

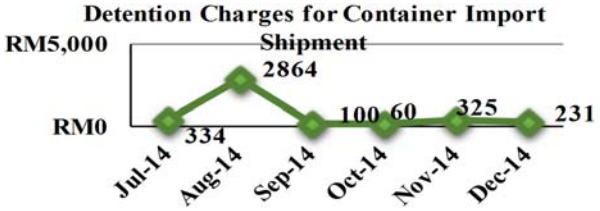


Fig. 4 Detention Charges for Container Import Shipment

The researcher has analyzed data in Fig. 4 based on [7] from the invoices of the shipping line to Nexus Zone Logistics. Detention charges are charged each day that an empty container has not been sent out from the factory to container yard. However, the amount of charges each day varies depending on each case or situation.

Based on the data given, the highest detention charges for import shipments was found in August 2014 with a record of RM 2,864, while the lowest detention charges for import shipments was in October 2014, which had been charged by RM 60. Further details regarding the exceeded free time given by the shipping line will being analyzed based on the highest detention charges.

The researcher selected a shipment that had been charged detention charges in the month of August 2014. This is a selected case that contributes towards the highest detention charges among three different cases in a record of RM 2,864.

Data will be analyzed based on Table II.

TABLE II
CHARGES INCURRED PER NO. OF DAYS

Case No.	Date out of Port (PG) (Laden Container)	Date into Container Yard (Empty Container)	Difference Days	Charges incurred per no. of days
1	23/07/2014	08/08/2014	17	23/07 – 26/07 (5 days): **RM 0 (free time given)** 27/07 – 29/07 (3 days): RM 77 x 3 = **RM 231** 30/07 – 03/08 (4 days): RM 94 x 4 = **RM 376** 04/08 – 08/08 (5 days): RM 143 x 5 = **RM 715**
		Total Amount :		**RM 1322**

The loaded container has been shipped out from the port to the factory on 23rd July 2014 but has been sent out to the container yard after being emptied on 8th August 2014. The container has been parked at the factory for 17 days, which led to excessive detention charges, as stated in Table II. Therefore, even though the shipping line will charge the importer (customer) directly, Nexus Zone Logistics is always responsible for making an early payment on their behalf.

VI. Conclusion

The researcher has determined that extra charges for export and import shipments occur when an exporter and importer (customers) violates the terms and conditions of the port operator and the shipping line.

As the middle man for both shipments (export and import), this situation causes difficulties for Nexus Zone Logistics to make their monthly payments to cover the costs of the services of hauliers and customs, when extra charges have being charged to them.

VII. Recommendations

Each month, ordinarily Nexus Zone Logistics will receive payments for both shipments (export and import) from the customers within 30 days or 60 days. Until now, most of the customers who are liaising with Nexus Logistics Zone will make the payment for monthly shipments after 30 days.

Usually payment for export and import shipment is in the range of RM 1,600 to RM 1,700 per container. However, the amount stated is not fixed as it will change continuously based on economic factors. Therefore, the researcher has proposed that Nexus Zone Logistics impose the payment of a 1% deposit per container to their customers.

For example, calculating a deposit 1% for a shipment costing RM 1,600 or RM 1,700 is equivalent to RM 16 or RM 17 per container. Customers will pay a deposit by issuing a check for a determined amount based on the quantity of containers that have been booked and before both shipments (export and import) and prior to handling by Nexus Zone Logistics. This is an initiative to reduce the extra costs that Nexus Zone Logistics has to bear every month.

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