Original Article

Factors affecting on Container Inventory Management (CIM): Evidence from Container depots in Sri Lanka

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ABSTRACT

Container inventory and management (CIM) is an integral part of running a successful container logistics operation, allowing for best-in-class container utilization and low-cost operations. Ineffective container inventory management has become a fairly widespread concern in the shipping industry. carrier's extensive fleet is essentially useless if it is not managed effectively and efficiently. The container inventory can be managed effectively to maintain a smooth balance between supply and demand while reducing potential extra expenses by adhering to efficient and effective procedures. This paper proposes some factors affecting to container inventory management [CIM] in Container depots in Sri Lanka. Accordingly, a target population of 384 senior employees in the field are followed by a questionnaire survey have been carried out and data were analyzed mainly using Chi-Square test. Researcher believes that responses received by employees whom with experience more than 10 years can highly influence on the output of the study based on judgmental sampling method.

Data analysis, reliability analysis, demographic factor analysis, descriptive statistical analysis, cross tabulation analysis, and correlation analysis. Chi-square testing and multiple regression analyses were used. With the expertise point of view, this study would lead to understand the factors influence on CIM. After clear analysis, the study concluded four factors namely, demand and supply of containers, high shipping rates, imports and exports trends and cargo seasonality have an influence on the container inventory management. It's acceptable that no any party can completely avoid such consequences, but the researcher believes that with proper identification and planning accordingly, this ineffectiveness of container inventory management can be lessened or controlled. With no doubt, taking proactive measures will positively impact on container industry of Sri Lanka as well as the economy of the country.

Index Terms- Container Inventory Management [CIM], Demand And Supply Imbalance, Efficiency

INTRODUCTION

According to (Anon., 2016) Sri Lanka is located at the crossroads of international shipping lines that connect East and West. Because of its location, Sri Lanka can provide swift and effective global and regional connectivity to carry freight from Asia to the rest of the globe. This is partly due to the country's location at the crossroads of all major sea routes connecting Asia to the rest of the world, as illustrated in the map below. Furthermore, Sri Lanka's proximity to all major ports in the Indian subcontinent, particularly those in India, gives it a strategic site capable of providing rapid and easy connectivity to the Indian subcontinent via its feeder network. Maritime Transportation has been a focal point in world trade. According to the statistical data of UNCTAD, over 80% of world trade is operated through Maritime Transportation.

Running a successful container logistics operation requires careful container inventory management (CIM) to enable best-in-class container utilization and cost-effective operations. Inability of performing a proper balanced Container Inventory Management system [CIM] is leading to a failure in the industry of maritime. In Container Inventory Imbalance [CII], the operator is unable to have a balance between the demand and supply of the containers. When the consignee places the order the operator will release the containers for the export process and when the cargo arrives at the port of destination, the consignee will unload the cargo and handover the empty container back to the yard of the specific operator. And depending on the requirement, then the containers will be transported to another destination or will be Empty Repositioned. (Edirisinghe, 2018) If containers are

constantly moving with freighted cargo, the optimum "utilisation" of inventories can be accomplished. This whole cycle of process should be managed properly in order to reduce the level of CII. At each and every stage of this process, it incurs a cost.In contrast, this paper focuses on the factors that influence the container inventory imbalance [CII] by taking the participating shipping lines' predicted and current container inventory data to make the "matching" of demand and supply more realistic (Edirisinghe, 2021). Also the way to take improving steps for a better container inventory management [CIM] by lowering overall costs and minimizing excess to avoid economic loss. In order to propose proactive solutions, a complete analysis of the variables empty container (MTY) repositioning, volatile trading patterns worldwide, container fleet size, international trade patterns, uncertainties of customer demands, and dynamic nature will be taken into consideration.

RESEARCH METHODOLOGY

Research Approach

Deductive and Inductive methods can be used to conduct a research. In a deductive research technique, the researcher may emphasis on what someone else done and study existing hypotheses regarding any topic the researcher is investigating, and then test assumptions using a hypothetical framework. The primary goal of the inductive approach is to generate hypotheses based on scientific information acquired through quantitative approaches (Saunders et al, 2016). In here researcher has identified the relevant theories. After then the conceptual framework has been developed. Following the conceptual framework, the hypotheses being prepared. After then based on the data collected the analysis is carried out.

Figure 1 Research Approach

Research strategy is simply the plan to achieve the objectives of the research. Since here the researcher uses a questionnaire to collect data, it has a quantitative technique. According to (Saunders, et al., 2016) there are many research approaches as experimental, action, case study, grounded, and ethnography. According to the background research, the researcher discovered that the “Experimental Strategy” is the most practical way since experimental research entails changing one variable to observe a change in another variable. In simple terms, to analyze the connection between variables. The main objective of experimental research would be to prove, reject, or verify the developed hypothesis. From the data collected, its attempt is to study the relationship between the independent variables towards the container inventory management.

Conceptual Framework

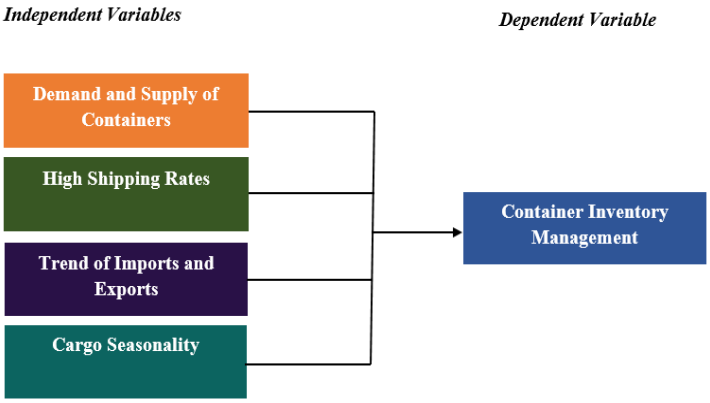

Figure 2 Conceptual Framework

In here the researcher has distributed the questionnaire with the senior managers, employees from the container shipping industry, shipping lines and container depots of Sri Lanka. Therefore, the responses received from these targeted populations will be taken in to consider. In here, the population is taken as an unknown value. Filtering through the population, the respondents with more than 10 years of experience will be chosen as the research population. The researcher believes that if the questions are answered by respondents who are aware of the study, the study will have a reliable influence. Therefore, the researcher believes that the employees with more than 10 years of experience in the field of shipping and container industry has proper knowledge and experience regarding the research study area.

Sample Justification and Technique

The researcher only analyzes responses from employees who have working experience for more than ten years out of a sample size of 384. In that case, the researcher believes that individuals with more than ten years of experience in the shipping and container business have adequate knowledge and experience in the research topic area.
Because the outcome of the research to meet the objectives is dependent on the data provided by the respondents, the respondents' expertise is critical. As a result, the research employs the judgmental sampling technique to conduct the final output analysis. The population will include senior employees with moderate to high levels of experience. Their experience will be margined as those with more than 5 years of experience. It is a non-probability sampling technique in which the researcher chooses units to sample based on prior knowledge or professional judgment.

Primary Data Collection Method

A well-structured questionnaire is the main tool the researcher uses to collect data. A "web-based questionnaire" is used to conduct the survey. Focus group discussions included a cross-section of senior managers, employees from the container shipping industry and container depots of Sri Lanka.

- Collection of Data Through Questionnaires

This strategy includes sending a questionnaire to the individuals selected in the sample population to get their feedbacks and knowledge based on their experience in the container industry. The questionnaire is divided into three sections, the first of which provides an overview of the researcher who collects data and the objective of the questionnaire. Section 02 of the questionnaire has 5 questions designed to elicit demographic information from the responder. Section 3 includes 15 questions with three questions each on the four independent variables and one dependent variable. This straightforward questionnaire design contributed to the study's high response rate. The Likert scale ranged from 1 to 5, and respondents were asked to indicate their preferences.

Secondary Data Collection Method

Table 1 Cronbach's Alpha Value

Dimension	Cronbach's Alpha Value	Number of Items	Internal Consistency Level
Imbalanced Demand and Supply of Containers	0.708	3	Acceptable
High Shipping Rates	0.712	3	Acceptable
Trend of Imports and Exports	0.740	3	Acceptable
Cargo Seasonality	0.773	3	Acceptable
Container Inventory Management	0.831	3	Good

The secondary data sources listed below provide invaluable support for the researcher's topical research. Secondary data are those that are already in existence; that is, they are those that have already been gathered and examined by another party. As a result, more than 50 publications on various aspects of CIM have been referred. The researcher for this study will make use of secondary data that is available at the referred to the shipping industries.
Online research materials
- Research reports
- Scholar articles
- Web sites
- Annual reports
- Statistical data from the websites of container depots, main shipping lines

Validity and Reliability

Likert scale questions are used in the study to establish variables. To ensure internal consistency, the direction of the questions should be verified against the variable. The Alpha Cronbach's alpha is used to calculate this. According to (Kothari, 2004), an Alpha Cronbach's value greater than 0.6 is regarded a high dependability and acceptable index. A value of Alpha Cronbach less

than 0.6 is considered low. Alpha Cronbach's alpha scores between 0.60 and 0.80 are considered moderate yet acceptable. Although Alpha Cronbach's alpha values between 0.8 and 1.00 are considered very good.

Table 2 Descriptive Statistics Summary

Statistics

		Imbalanced Demand and Supply	High Shipping Rate	Trend of Imports and Exports	Cargo seasonality	CIM
N	Valid	368	368	368	368	368
	Missing	0	0	0	0	0
Mean		3.9638	3.8089	4.0507	3.8895	4.0625
Std. Deviation		.61999	.67524	.58632	.65140	.585955
Variance		.384	.456	.344	.424	.343
Skewness		-.791	-.801	-1.058	-1.077	-.921
Std. Error of Skewness		.127	.127	.127	.127	.127
Kurtosis		1.295	.732	1.572	1.683	1.266
Std. Error of Kurtosis		.254	.254	.254	.254	.254

Correlation Analysis

Correlation analysis is a statistical evaluation approach used to determine the availability and strength of a relationship between two variables. This method is also used to determine whether there is a substantial relationship or pattern between two variables.

Regression Analysis

Regression analysis is used to determine the strength of the link between the independent and dependent variables. It can also be used to evaluate the strength of the relationship between variables and to forecast their future relationship.

RESULTS AND DISCUSSION

Reliability Measurement of Variables
Descriptive Statistics of Variables

Mean

According to the SPSS output in this calculation, the highest mean value is with the variable container inventory management. And also it's clear that all the variables have a high mean value around 4. Taking one example, the mean of demand and supply of containers is recorded as 3.9638. That means as this is resulted from a 5 likert scale, respondents have rated the imbalanced demand and supply of containers as 3.9638 out 5. Higher the value of mean is higher the level of acceptance.

Standard Deviation

And the standard deviation, the variable the high shipping rate has the highest standard deviation of .67524 whereas the container inventory management has the lowest standard deviation. Standard deviation is the dispersion value of the specific data from the mean value. If the mean value and the standard deviation value of cargo seasonality are 3.8895 and 0.65140 respectively, it implies that data of individual data are dispersed at a value distance of 0.65140 from the mean value. If the standard deviation is meant to be high, that's unhealthy for the result.

Skewness

Positive "Skewness" value explain that distribution of the tail is right side and the negative "Skewness" value explains the left side of the distribution tail. Demand and supply of containers, high shipping rate, cargo seasonality have negative skewed values which are left tailed. And the Trend of Imports and Exports and CIM have positive skewed valued which means positive tailed.

Table 3 Skewness Analysis

Dimension	Value	Skewed Level	Tail
Demand and supply of containers	-0.791	Moderately Skewed	Left Tailed
High shipping rate	-0.801	Moderately Skewed	Left Tailed
Trend of imports and exports	-1.058	Moderately Skewed	Left Tailed
Cargo seasonality	-1.077	Moderately Skewed	Left Tailed
CIM	-0.921	Moderately Skewed	Right Tailed

Demand and supply of containers, high shipping rate, cargo seasonality have negative skewed values which are left tailed. And the Trend of Imports and Exports and CIM have positive skewed valued which means positive tailed.

Table 4 Correlation Measurement

Value of Correlation	Interpretation
r = +1	Perfectly Positive
r = [0.70-1.00]	Strong Positive
r = [0.50-0.70]	Average Positive
r = [0.00-0.50]	Week Positive
r = - 1	Perfectly Negative
r = -[0.70-1.00]	Strong Negative
r = -[0.50-0.70]	Average Negative
r = - [0.00-0.50]	Weak Negative

Kurtosis

Table 5 Kurtosis Analysis

Dimension	Kurtosis Value [Absolute Value]	Std. error of Kurtosis	Kurtosis Level
Demand and supply of containers	1.295	0.762	Normally Distributed
High shipping rate	0.732	0.762	Normally Distributed
Trend of Imports and Exports	1.572	0.762	Normally Distributed
cargo seasonality	1.683	0.762	Normally Distributed
CIM	1.266	0.762	Normally Distributed

Multicollinearity Diagnostic Test

Abbreviations:

- Demand and supply of containers - DS
- High shipping rate - SR
- Trend of imports and exports- EI
- Cargo seasonality- CS
- Container Inventory Management- CIM

Correlation analysis between independent variables and dependent variable, container inventory management.

Regression Analysis

Table 6 ANOVA Summary

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.146	4	8.787	35.104	.000[b]
	Residual	90.861	364	.250		
	Total	126.007	368			
a. Dependent Variable: CIM						
b. Predictors: (Constant), CS, DS, EI, SR						

R Value

R value implies the linear relationship between the variables, whether they have a positive relationship or negative relationship. If $R \geq 0.5$, there's a good relation. As per the model summary, the "R" value is significant at the level of 0.528.

R Square Value

R Square value illustrate that 27.9% of the variation of Container Inventory Management is explained by the four independent variables. Adjusted R Square is 0.271, which can be explained as model goodness is 27.9%, and moderate level of impact between dependent and independent variables. Since the difference between the R square value and the adjusted R square value is low, it can be considered that the effect of confounding variables is low within the model.

Durbin – Watson

Durbin –Watson predicts the future values from the current values [auto correlation]. Durbin –Watson test statistics is 1.720 and the value is between 0 and 4. Since the above values in between 0-2, it's positive auto correlation. Therefore, since a pattern can be identified the future values can be predicted. Also, residuals can be identified as independent and the result will be more appropriate.

Table 7 Correlation analysis

Dimension	Test Statistic [Correlation]	Significant [2 - tailed]	Status
DS →CIM	0.334	0.000	Weak Positive
SR→ CIM	0.287	0.000	Weak Positive
EI→ CIM	0.389	0.000	Weak Positive
CS→ CIM	0.433	0.000	Weak Positive

ANOVA

As per the table outcome significance level of 0.00, which is less than 0.05, which means the null hypothesis H_0 is rejected. Further it describes that at least one independent variable has a gradient value which mean there is significant association between the identified four independent variables and the dependent variable, container inventory management. F value is 35.104, which signifies that the independent variables and container inventory management are significantly correlated.

Coefficient

The coefficient table shows the coefficient values of each independent variables and the way they impact on the dependent variable. The below hypothesis can be built.

$$H_0; \beta_1 = \beta_2 \dots\dots\dots \beta_k = 0$$
$$H_0; \beta_1 = \beta_2 \dots\dots\dots \beta_k \neq 0$$

Where,
β=slope of the model
k=number of independent variables

According to the table, individual β value probability of imbalanced demand and supply of containers is 0.00, this is significant at 5% significant level (95% confident level) and it comprises is 0.181 of individual β value. Therefore, the null hypothesis is null hypothesis H_0 is rejected. This indicates that imbalanced demand and supply of containers has significant positive effect on container inventory management.

The individual β value probability of high shipping rate is 0.00, this is significant at 5% significant level (95% confident level) and it comprises is 0.045 of individual β value. Therefore, the null hypothesis is null hypothesis H_0 is rejected. This indicates that demand and supply of containers has significant positive effect on container inventory management.

According to the table, individual β value probability of trends of exports and imports is 0.034, this is not significant at 5% significant level (95% confident level) and it comprises 0.045 of individual β value. Therefore, the null hypothesis H_0 is not rejected and alternative hypothesis is accepted. This indicates that trends of exports and imports has significant positive effect on container inventory management.

The individual β value probability of cargo seasonality is 0.00, this is significant at 5% significant level (95% confident level) and it comprises is 0.220 of individual β value. Therefore, the null hypothesis is null hypothesis H_0 is rejected. This indicates that demand and supply of containers has significant positive effect on container inventory management.

According to the standardized coefficient of β, most influencing factor seems to be the cargo seasonality and the least influencing factor seems to be the shipping rate.

Following Linear Regression Model can be developed according to the unstandardized coefficients.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

$$Y = 1.358 + 0.181\, X_1 + 0.045 X_2 + 0.220 X_3 + 0.238 X_4$$

Where,
Y = Container Inventory Management
X_1 = Demand and Supply of Containers
X_2 = High Shipping Rate
X_3 = Exports and Imports
X_4 = Cargo Seasonality

The above equation implies the level of impact of each independent variable on the dependent variable. In one scenario, if the variable demand and supply of containers is increased by 1 unit, the container inventory management will have increased by 0.181. So on if exports and imports is increased by 1 unit, the container inventory management will have decreased by 0.220.

Since all the tolerance values are greater than 0.2, we can conclude that all the values are normally distributed. Because all of the Variation Inflation Components (VIF) are less than 5, independent factors are not correlated. As a result, there is no multi co-linearity problem in the regression model.

Table 8 Regression Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.528[a]	.279	.271	.50030	1.720

a. Predictors: (Constant), CS, DS, EI, SR

b. Dependent Variable: CIM

Table 9 Hypothesis Testing Summary

Variable	Hypothesis	Chi Square Significance value	Summary
Demand and Supply of Containers	H_0 ; Null H_1 ; Alternative	0.000	H_1 ; Alternative is accepted
High Shipping Rates	H_0 ; Null H_1 ; Alternative	0.000	H_1 ; Alternative is accepted
Trend of Imports and Exports	H_0 ; Null H_1 ; Alternative	0.000	H_1 ; Alternative is accepted
Cargo Seasonality	H_0 ; Null H_1 ; Alternative	0.000	H_1 ; Alternative is accepted

Hypothesis Testing

Table 10 Hypothesis Dimensions

Dimension	Impact
Demand and Supply of Containers	Positive
High Shipping Rates	Positive
Trend of Imports and Exports	Positive
Cargo Seasonality	Positive

With the analysis of hypothesis with Chi- Squared significance value, it was decided whether to accept which hypothesis. Likewise, all the independent variables were tested and accepted the alternative hypothesis as their significance values were less than 0.05. It implies that there's a relationship between all the independent variables and the dependent variable.

CONCLUSION

The end outcome was beneficially aligned with the researcher's point of view. This means that when demand and supply increases, CIM is also increases because of resulting a container inventory imbalance. With the expertise view point received by the researcher, it can be concluded that this factor has adverse impacts on the container inventory management. With price increase, their rate of impact is responded as a high value which implies that it has a high significant impact on CIM. The researcher suggests this condition as an influence factor on CIM based on the situation in Sri Lanka, particularly the government-imposed bans. Even experts in the field have agreed with the researcher based on their own experience. As a result of the aforementioned investigation, it has been determined that it is an influencing element on CIM. To comment on shipping seasonality, researchers highlighted two major seasons: Chinese New Year and Christmas. It's evident that this is not the usual throughout the holiday season. The shipping container sector, like other industries, is being impacted. For example, during the Chinese New Year, all manufacturing and exports are halted due to their holiday seasons. Keeping containers in China at that time is wasteful. As a result, container inventory must be effectively maintained in order to minimize the effects. This adverse impact is examined in relation to the experience of senior personnel above, and it is proven that there is a relationship between cargo seasonality and CIM.

This research focused on the factors affecting the efficiency of container inventory management. It must be addressed because it has become a concern as a result of Sri Lanka's economic inflation. This study emphasizes the importance of these factors on a better CIM system.

STUDY LIMITATIONS

The researcher attempts to identify where the research is constrained by highlighting the study's limitations. They are the limitations on generalizability and usability of findings that emerge from the design of the study and/or the method employed to ensure internal and external validity.

Contextual Limitation

International shipments of goods, particularly in the maritime industry, rely heavily on container transit. Even though there are many concepts in logistics industry, the researcher has limited its context to container inventory management. Containers are transported in many modalities, it is primarily and efficiently done through the maritime industry. Therefore, the research is carried down within the maritime field.

Geographical Limitation

Though shipping is available all over the world, the researcher focused on the shipping industry in Sri Lanka. The research will focus on container inventory management in Sri Lanka. In Sri Lanka, the containers handled through the Colombo port will be primarily targeted. Because of Sri Lanka's strategic location, the container handling and shipping industry contributes significantly to the country's income. As a result, the researcher's ultimate purpose is to improve management of containers.

Population and Sample Limitation

Despite the fact that there are numerous parties involved with shipping industry, container handlers and owners are primarily responsible for utilizing their containers. As a result, all depots involved in the container handling will be the researcher's population, while the parties handle over 50,000 TEUs will be the study population.

Time Limitation

The researcher used statistical data from the year 2021 to continue the research approach and to assess the contributing aspects. The researcher assessed the impact of the addressed issues in there by limiting it to 2021.

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DECLARATION

I hereby declare, this dissertation is a piece of my own work, which I conducted independently, without the participation of any other member or members, as a requirement for the completion of the degree program, BSc in Logistics and Management. The references acquired from other related studies have been properly acknowledged in this research. In addition to that, proper acknowledgment of the secondary data has also been carried out. I further declare that any of the information presented in this research has not been submitted for any other degree program prior to this submission.

REFERENCES

1. Anon., 2016. Sri Lanka: A Logistics and a Maritime Hub. *Ministry of Foreign Affairs.*
2. Bhowmick, S., 2022. Understanding the economic issues in Sri Lanka's.
3. Mathugamage, N., & Siriwardena, S. (2023). Analysis of the factors affecting to logistics service quality based on unaccompanied passenger baggage warehouses in sri lanka. Dl.lib.uom.lk. http://dl.lib.uom.lk/handle/123/21613

4. Identify the CLIA's Efforts Towards to Mitigate the Environment Impact by Cruise Tourism Industry, Hansika Nirmani, Damsi Dharmaratne, Sampath Siriwardena, 2021. CINEC Campus.

5. Bingzhou, L., 2008. A Stochastic Model for Dynamic Capacity Allocation of Container Shipping Two-Dimensional Revenue Management.

6. Clarkson, 2020. Container Demand Trade.

7. COMMERCE, D. O., 2021. International Trade Statistics.

8. FREIGHT, S., 2022. International Shipping and Chinese New Year: Considerations for Your Business.

9. Intelligence, M., 2022. *Sri Lanka Freight and Logistics Market study.*

10. Jin, M., 2018. Trading Patterns Change.

11. Kabir, S. M. S., 2016. *Methods of Data Collection.* s.l.:s.n.

12. Kim, J.-H., 2018. Studies on Supply and Demand Paradox in Shipping Market.

13. Kothari, C. R., 2004. Research Methodology.

14. Larsen, S., 2021. How to pick the right shipping container. *GREENCARRIER BLOG.*

15. Monios, J. & Yuhong Wang, 2014. *Regional Stakeholder Solutions to Empty Container.* s.l.:s.n.

16. Moorthy, R., 2022. Rising sea freight rates expected to normalise by 1H 2022.

17. Mulder, J. & Dekker, R., 2016. Optimization in container liner shipping.

18. Raunglerdpanyagul, W., 1985. The Seasonal Pattern of Shipping Freight Rates.

19. Raunglerdpanyagul, W., 1985. The Seasonal Pattern of Shipping Freight Rates.

20. Saunders, M., Thronhill , A. & Lewis, P., 2016. Research Methods for Business Students.

21. Shipping, H., 2023. Chinese export container rates drop 27% as usual Lunar New Year cargo rush fails.

22. Soloviova, L., 2020. Container Transport System as a Means of Saving.

23. Song, D.-P., 2015. Empty Container Repositioning.

24. Tabachnick & Fidell , 2001. Using Multivariate Statistics.

25. Tavakol, M. & Dennick, R., 2011. Making sense of Cronbach's alpha.

26. Theofanis, S. & Boile, . M., 2008. Empty marine container logistics: facts, issues and management strategies.

27. UNITEDNATIONS, 2021. Review of Maritime Transport.

28. Yin, J. & Shi, J., 2018. Seasonality patterns in the container shipping.