GROSTLOG 2020
Global Research on Sustainable Transport & Logistics

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

# OPERATIONAL PERFORMANCE OF THE CONTAINER FOR INCOME (CASE STUDY: PT JICT PERIOD 2014-2018)

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**Abstract**. JICT Jakarta (Jakarta International Container Terminal) is the largest container terminal in Indonesia for loading and unloading activities from the terminal to on board or vice versa. The purpose of this study is to analyze the effect of container terminal operational loading/unloading performance toward to the terminal income. The research method used is secondary data JICT with quantitative analysis of simple linear regression analysis based on monthly historical data from January 2014 until December 2018 (60 months). The expected result is to have a positive direct effect of container terminal operational loading/unloading performance on the terminal income.

**Keywords**: *Terminal Operational Performance, Terminal Income*

## 1. Introduction

Sea transportation is one of the most important means of transportation in supporting the economy and national development of a nation(Susetyo, Moeis, & Wibisono, 2019). As the most vital transportation for the economy, the sea transportation must be well developed and proper to support the economic growth, especially in Indonesia.

The infrastructure of the port in Indonesia is still not able to provide optimum service, because the port capacity is still not in accordance with the needs of(Indriastiwi, 2017).
Container ship size is increasing because the shipping company is looking for the economics of scale on the market which is currently very competitive. The container terminal is an important link in the sea freight transport system. The current rivalry between the port industries is much fiercer than before because the geographical location of the port cannot be moved and the port is a place of cargo centration, so the first port market is assessed as Monopoly (Yeo, 2010).
Indonesia's national Port service performance cannot be separated from infrastructure availability and stevedoring facilities. The current performance of the port of Indonesia is measured by port service and utility indicators. Indonesia's national port performance in terms of efficiency indicators are measured by three indicators: (1) Fleet Services, (2) Freight services, and (3) port facility Utilities (Sutomo & Soemardjito, 2012). The performance of the container terminal is the indicator needed to assess the smooth operation of the container terminal in serving the transportation activities of goods and its development forward. In particular, improving the communication system is essential to support fast access to information to improve operational efficiency and productivity in the field of transport (Lun, Browne, Lai, Wong, & Cheng, 2011) and will impact the company's revenue. If the performance of the port is good, then the volume of containers entering into the port will increase productivity.

PT. JICT's revenue as one of the business companies engaged in the operation of the container terminal is very dependent on the operational performance of its terminals. There are many ways to measure port performance productivity, namely by using physical indicators, factor productivity indicators and financial indicators (Bichou & Gray, 2005).

In this case the Independent Variable is operational performance (X) as measured by the number of containers that are unloading through the JICT terminal while the Dependent Variable is business Revenue (Y) refers to the amount of money received by the company from the operational performance of the loading/unloading.

ISSN: 2622-5778 (online)
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In this research the author has the following hypotheses:

**Ho** : Allegedly there is no link between the operational performance of the terminals with the alternate business income;
**Ha** : There is a significant link between the operational performance of the terminals with business revenues.

In this research is sought-after relationship between container performance and company revenue. Performance data is taken from the volume data of JICT containers from January 2014 to December 2018 (as many as 60 months). Researchers do not measure what things effect the volume of containers that can rise or fall.

Based on the background above, the researchers are interested to conduct the research on the operational performance of the terminal of the company's revenue with the subject matter of how strong the relationship and how much the impact of the operational performance of the terminal to the company's revenues.

**Figure 1. Jakarta International Container Terminal**

Container Terminal was established in the year 1999 which is located in Tanjung Priok, North Jakarta and it is strategically located at the industrial heartland of West Java. It is also the largest container terminal in Indonesia. Besides the pioneer of 100% sterile Terminal that endow with security, safety and clean in every line of its environment, JICT provides quality services to more than 20 shipping lines with direct routes to more than 25 countries and is committed to provide fast, efficient and reliable services 24 hours a day and all year round.

## 2. Method

This study uses quantitative methods with a simple regression model to analyse the operational performance of the container terminals against JICT revenues.

The data used is based on the productivity of the quantity loading containers through JICT terminals from 2014 to 2018. The study will identify the variable X (operational performance) and the variable Y (company revenue). In this research the data used is amounted to 60 months, taken from January 2014 to December 2018. The simple linear regression formula is performed using the following formula:

$$\mathbf{Y = a + bX}$$

Where:
Y= Variable Response or variable consequences (Dependent)
X = Variable predictor or variable cause factor (Independent)

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Advances in Transportation and Logistics Research
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a= Constants
b = Regression coefficient (slope); Of the Response generated by the Predictor.

Values A and B are calculated by using the formula below:
$A = \frac{(\Sigma y)(\sigma x^2) - (\Sigma X)(\Sigma xy)}{N(\Sigma x^2) - (\Sigma X)^2}$

$b = \frac{N(\Sigma xy) - (\Sigma x)(\Sigma y)}{N(\Sigma x^2) - (\Sigma X)^2}$

The result is from the calculation of the formula with the assumption; if the productivity of the container volume in JICT is increased, then the company's revenue will rise.

**Tabel 1. Simple Linear Regression Test**

| | Mean | N |
|---|---|---|
| Y1 (Company's income) | 16088972.5500 | 60 |
| X1(Op Terminal performance) | 188032.5000 | 60 |

Quantitative analysis results show that the average operational performance of the container terminals as much as 188,032 of TEUS per month in the period of January 2014 – December 2018. Similarly, the company's revenue variable averages 16,088,972 per month in the period of January 2014 – December 2018.

**Coefficients[a]**

| Model | Unstandardized Coefficients | | Standardized Cokjefficients | | | 95.0% Confidence Interval for B | | Correlations | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | t | Sig. | Lower Bound | Upper Bound | Zero-order | Partial | Part |
| 1 (Constant) | -7686100.516 | 5313360.679 | | -1.447 | .153 | -18321947.490 | 2949746.455 | | | |
| (KinerjaOperasional) | 126.441 | 27.697 | .514 | 4.565 | .000 | 71.000 | 181.882 | .514 | .514 | .514 |

a. Dependent Variabel: Operational performance

The result of Table. 1 Coefficients[a], is as follows:
Y = a + bX + E
Y =-7686100.516 + 126, 441X

The inter achievements of the above regression equations are:
Constant value-7866100.516 means if loading/unloading (X) is 0, then the operational performance (Y) is-7686100.516.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
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The simple loading/unloading (X) regression coefficient of 126.441 means that each unloading/unloading (X) increases one unit so that operational performance (Y) will increase by 126.441 units. The efficiency is positive, the higher the productivity of loading/unloading (X) will increase the operational performance (Y).

## 3. Discussion and Result

This research data is taken from secondary data at JICT which is 60 months from January 2014 to December 2018. The secondary data is done by noting the performance of the terminal that is the productivity of the number of container loading/unloading in that period.

| Months | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| 1 | 174,475 | 131,629 | 112,588 | 205,990 | 251,470 |
| 2 | 170,440 | 128,909 | 157,119 | 177,158 | 218,344 |
| 3 | 179,605 | 168,843 | 171,184 | 205,417 | 252,739 |
| 4 | 177,318 | 145,199 | 184,237 | 209,127 | 262,736 |
| 5 | 179,245 | 151,792 | 207,035 | 223,818 | 275,586 |
| 6 | 179,534 | 154,803 | 201,436 | 206,795 | 247,723 |
| 7 | 173,782 | 163,544 | 225,685 | 225,685 | 230,653 |
| 8 | 182,101 | 165,188 | 211,840 | 197,240 | 161,011 |
| 9 | 167,015 | 133,506 | 156,649 | 183,156 | 216,485 |
| 10 | 141,523 | 152,397 | 203,094 | 217,980 | 225,254 |
| 11 | 149,613 | 251,583 | 195,367 | 204,154 | 212,062 |
| 12 | 123,029 | 102,261 | 181,237 | 186,206 | 230,645 |
| Amount | 1,997,680 | 1,849,654 | 2,207,471 | 2,442,726 | 2,784,708 |
| Increase (%) | - | -7.41 | 19.34 | 10.66 | 14.00 |

**Figure 2. Operationalperformanceof Terminal PT JICT. 2014-2018 (In TEUs)**
***Source:*** *Processed from Data PT. JICT 2019*

Based on Figure 2 it shows that the operational performance of the container Terminal PT. JICT has continued to increase for five years (2014-2018), except in 2015 decreased by 148,026 Teus or – 7.41% compared with the previous year, i.e. 2014. Likewise, in 2016 Operational terminal-container performance has increased by 357,817Teus increases quite significantly 19, 34% from 2015. The following year 2017 the operational performance of the container terminal is increased by 235,255 Teus or increased by 10.66%. Likewise, the year 2018 is increased by 341,982 Teus or increased by 14%. So the average performance or operational productivity of the container terminal is by 2.256.447 Teus per year. While the average operational performance increases in the operating terminal of 7.31% per year in the last five years period.

The increase in container productivity in TEUs/UNIT is due to the economic factor is good so that the goods flow out very busy with high operating readiness level, ranging from the availability of the vessel jetty terminal. The readiness of equipment for loading/unloading in good condition is supported by competent human resources so that there is no any difficulties or problems in the implementation of loading/unloading performance.

The occurrence of a reduction in container productivity in TEUS/UNIT is due to among other things in the flow of incoming goods that are not busy due to the impact of economic growth. The readiness of the equipment loading/unloading is less maximum due to the presence of

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

equipment damaged or in the treatment, and human resources are less disciplined and competent in the operation of all equipment and activities loading/unloading performance.

### 3.1 Company Revenue Analysis

Income or revenue is a gross or gross increase in the owner's capital resulting from the sale of merchandise, the implementation of services to customers and all business activities and professions that aims to earn income(Lintjewas, Tulusan, & Egeten, 2016). The revenue is intended here is the revenue of PT. JICT in the last five years (January 2014-December2018) which is obtained from the sale of container Terminal Services.

| Months | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| 1 | 16,013,226 | 13,038,281 | 17,135,230 | 21,303,931 | 27,983,066 |
| 2 | 15,665,066 | 12,702,656 | 15,955,673 | 20,287,083 | 25,404,790 |
| 3 | 16,497,461 | 14,441,913 | 17,990,263 | 23,824,637 | 30,068,744 |
| 4 | 17,770,607 | 14,185,509 | 18,800,472 | 21,386,235 | 31,413,638 |
| 5 | 16,618,336 | 14,544,750 | 22,129,175 | 25,046,265 | 31,440,538 |
| 6 | 18,236,672 | 15,529,678 | 23,092,066 | 25,542,568 | 33,193,173 |
| 7 | 17,420,335 | 15,783,360 | 23,188,915 | 26,778,387 | 25,712,259 |
| 8 | 17,672,909 | 17,057,876 | 23,014,824 | 23,802,525 | 19,139,530 |
| 9 | 19,166,334 | 14,397,192 | 16,886,765 | 21,371,111 | 27,001,837 |
| 10 | 16,084,023 | 15,948,101 | 21,963,951 | 25,259,202 | 26,109,451 |
| 11 | 18,319,223 | 27,179,489 | 21,701,191 | 24,142,898 | 26,531,219 |
| 12 | 13,331,598 | 11,417,416 | 20,690,069 | 21,391,829 | 26,563,027 |
| Amount | 202,795,790 | 186,226,221 | 242,548,594 | 280,136,671 | 330,561,272 |
| Increase (%) | - | -8.17 | 30.24 | 15.50 | 18.00 |

**Figure 3. Revenue of PT JICT Business. 2014-2018 (In US $)**
*Source: Processed from Data PT. JICT 2019*

Based on Figure. 3, it depicts the company's revenues continue to increase over the past five years. Only in 2015 business revenues is decreased (-) by US $16,569,569 or decreased (-) by 8.17% compared with the year 2014. The operating income of 2016 compared to the year 2015 is increased again by US $56,322,373 or increased by 30.24% and from 2016 to the year 2017 increased by US $37,588,077 or increased by 15.50%. As in 2018, the year is increased by US $50,424,601 to increase by 18%. If it is calculated from 2014 until the year 2018, the average company's revenue increased by 11.12% per year. The average company's income per year is US $248,453,710 over the last five years.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
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The increasing of revenue in the company/terminal container in USD is due to good economic factor that the flow of goods comes out very busy and high operating readiness level, ranging from the availability of the jetty vessel terminal. The readiness of equipment for loading/unloading in good condition is supported with competent human resourcess so that the operational service increases with customer trust to transfer the container to JICT terminal in their implementation.

The decreasing of revenue in the company/terminal container in USD is due to among other things in the flow of incoming goods are not busy because of the impact of declining economic growth. The readiness of loading/unloading equipment is not maximal because of some equipment that is damaged or untreated, and human resources are undisciplined and incompetent in the operation of all loading/unloading equipment.

**Table2. The correlation**

| | | Company revenue | Op. Terminal Performance |
|---|---|---|---|
| Pearson Correlation | Company revenue | 1,000 | ,999 |
| | Op. Terminal Performance | ,999 | 1,000 |
| Sig. (1-tailed) | Company revenue | . | ,000 |
| | Op.TerminalPerfomance | ,000 | . |
| N | Company revenue | 60 | 60 |
| | Op.Terminal Performance | 60 | 60 |

The results of analysis of the correlation between theoperational ofterminalperformance and company revenue is 0.999 with significance rate 0.00. This indicates a very strong and positive correlation. The positive relationship means the higher of the operational performance of the container terminal relates with the higher of the company's revenue and vice versa.

**Table 3. Model Summary[b]**

| Model | R | R Square | Adjusted R Square |
|---|---|---|---|
| 1 | ,999[a] | ,997 | ,996 |

a. Predictors: (Constant), TERMINAL PERFORMANCE

b. Dependent Variable: TERMINAL REVENUE

This is the result of the relationship between the performance of the terminal (variable X) with the performance bound variable from the revenue (variable Y) positive value of 0.999 or 99.9% which means there is a significant relationship.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
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The coefficient of determination indicates that the performance effect of the terminals on revenues in JICT has 99.7%. Significantly, the volume of containers that enter the port terminal will effect the revenue. The more containers come in, the more terminal revenue increases. The tariff of the port services consist of the tariff of ship service, service goods, passenger service, equipment service, and other port services.

According to the observation in the field, in the 2014-2018 period, the volume of containers that came to the port was heavily influenced by the number of vessels that came using the service loading/unloading in the terminal. The service of loading/unloading is efficient or otherwise influenced by the facilities available in the port terminal, among others; The availability of truck trailer can accommodate the productivity of loading/unloading activities, competent human resources relationship with the operation of loading/unloading equipment, well readiness for equipment loading/unloading and the occupancy rate of vessel jetty terminal which is always available in accordance with the ship's coming.

## 4. Conclusion

Based on the results of analysis and discussion as described previously, the operational performance of the container Terminal which is image in the productivity of loading and unloading of business income based on secondary data of income statement of PT. JICT from January 2014 until December 2018 indicates that:

a. The average operational performance of the container terminals per year amounted to 2,256,447 TEUS. The operational performance improvement of the container terminals is 7, 31% every year.
b. The average operating income per year is US $248,453,710 and the average company's revenue increase annually 11, 11%.
c. JICT operational activities generally include the current activities of goods, the duration of the vessel service at jetty terminal and the cost of loading/unloading services.
d. Loading/unloading productivity is the amount of tonnage/container unit in the terminal in the specified time.
e. Duration of service of a ship has been carried out activities related to the time of waiting availability facility, cargo readiness, completion of documents and work schedules in the terminal so that the ship is not waiting for so long.
f. The cost of loading/unloading terminal container is a measured of the efficiency of the operational jetty terminal management.
g. Port revenue is likely to be compared to the productivity of the port that the higher productivity will earn a comparable income. The port revenue from month to month is likely to fluctuate in a random or erratic nature. This occurs because it is not against the number of containers that go through the terminal. Certain agenda is also one of the factors that are not against the movement of import activities such as Eid Mubarak when the loading and unload activities should be discontinued for a few days which leads to decreased productivity, the Chinese New Year which effects all activities from China, and other agenda. Productivity is likely to increase from year to year due to the number of exports and imports through terminal that is always increased.
h. The longer the delay will cause the less revenue. Variable loading performance effectiveness has a significant and positive relationship to income. It means that it is more effective for the loading and unloading performance so that the revenue will increase. The terminal performance variables are simultaneous and have a significant relationship to the dependent variable including income level.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
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