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An Analysis of the Factory Dwelling Time Causes at the Makassar Container Terminals

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Abstract: *Makassar Container Terminal functions as trade logistics for both exports and imports. The dwelling time in Makassar Container Terminal currently reaches 4.09 days while the target set by the government is 3.5 days. This study aims to determine the factors causing dwelling time in Makassar Container Terminal. Data were analyzed using the Relative Index (RI) method. The results showed that the main factors causing dwelling time were posted clearance factor with the RI value of 0.728, preclearance factor with the RI value of 0.593, and customs clearance factor with the RI value of 0.487. In the post-clearance stage, the most influential sub-factors were importers/business actors with an approval rate of 87.33% and port operators with an approval level of 85.33%. In the pre-clearance stage, the influencing factor is the behavior of the entrepreneurs who hoard goods with an agreement level of 63.33%. It was concluded that because business operators/importers prefer to hoard their imported containers in the temporary stacking field, the port should increase parking fees and container fines and maximize equipment.*

Keywords: *Dwelling time, Relative Index, container, terminal*

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I. Introduction

The transportation system is the main supporter of the functions of the trading system. The economic progress of a region depends on the availability of regional supporting infrastructure and facilities in the form of transportation facilities and infrastructure [1]. According to the UNTACD (United Nations Conference on Trade Development) survey, the contribution of transportation modes in world trade is air transportation by 0.3%, land transportation by 16%, piping 6.7%, and sea transportation reaching 77% [2].

Ports as an absolute gateway to the economy must be able to contribute to, among others, the emphasis on distribution costs that have an impact on purchasing power, competitiveness, and the multiplier effect on national growth and income. The length of time for loading and unloading of goods at the port is often referred to as Dwelling Time.

Dwelling Time is the average time the Container is inside the Terminal since the Container is unloaded from the ship (discharge) until leaving the Terminal (Gate Out), which means that all obligations related to importation (Quarantine, Customs, etc.) are completed so that it can be fully controlled by the owner of the goods [3].

Reducing dwelling time according to the President's instructions is complex because many parties are involved in the overall process of flowing goods at the port and it is quite difficult to analyze which party is most contributing to the overall dwelling time. Dwelling time that occurs at Makassar Container Terminal is divided into pre-clearance, customs clearance, and post-clearance processes.

The dwelling time is done by reducing costs and leading to increased productivity and higher efficiency of the port [4].

Using data mining techniques and decision trees in research to estimate the dominant factor in dwelling time at US ports about using dwelling time to increase port capacity [5]. Importation data used are number, type and size container, truck and ship owner and ship arrival and departure dates In the literature study, various factors that influence dwelling time are described, namely the location and function of the terminal, port management and management policies, performance, and management of shipping and trucking companies, type of container, type of goods, level container security, shipper performance, item owner performance, and forwarder performance.

The research is carried out to determine the impact and solutions of dwelling time at Tanjung Priok Port [6]. From the results of the study, it was concluded that dwelling time has a major effect on the country's

economy at large. The solution to the dwelling time problem that occurs is to do improvements to system governance and management patterns and synchronization between institutions involved in the process of dwelling time, computerized technology and technology rejuvenation are also needed as a means of supporting the improvement of dwelling time at the port.

The main obstacle found in dwelling time is in the preclearance stage, namely the length of time for processing and issuing permits for importing *lartas* (Prohibition and Restriction of Goods). Some of the causes of the obstacles that can be identified are: the importer does not or does not yet know that the imported commodity is subject to the provisions of *Lartas* from the technical agency; licensing of *lartas* is still done manually with the number of supplementary documents that extend the time of the licensing process; the processing of *lartas* import licensing is carried out at each technical agency office that is on average far from the port [7].

Based on statistical data, the development of the amount of time in handling loading and unloading at ports nationwide includes 4 main ports in Indonesia, namely: Belawan Port, Tanjung Priok Port, Tanjung Perak Port, and Makassar Soekarno-Hatta Port, during the period January 2017 to May 2019 showing the existence of the length of time ranges from 2.95 days to 5.1 days which, if on average, will get a time of 3.85 days. The data has not yet reached the target set by the government which is 3.5 days [8].

Based on the field research, the author find the dwelling time at the Makassar Container Terminal is 4.09 days. This value is still above the value targeted by the government at 3.5 days. This study aims to determine the factors that influence the occurrence of dwelling time in Makassar Container Terminal.

II. Material And Method

Location and Research Design

This research was conducted at Indonesian Port Company IV (IPC-IV) Makassar Container Terminal Branch. This type of research is a correlation to analyze the factors that influence the occurrence of dwelling time in Makassar Container Terminal.

Method of collecting data

Data collection is done by conducting direct observations in the field and conducting interviews with the port and distributing questionnaires. Direct observations and interviews with the port are specifically on the process of pre-customs clearance, customs clearance, and post-customs clearance. From these observations, the authors identify the variables that influence dwelling time at the Makassar Container Terminal, namely the time to fulfil import of goods, operators and reliability of unloading equipment at Marshal Yard, the behaviour of entrepreneurs who hoard goods, operators and reliability of tools at Container Yards, Customs officers and Excise, shipping agent, Trucking availability, Importers related to the release of goods, operators and reliability of the equipment at Container Yard, shipping agents, availability of Trucking, importers related to the release of goods.

In distributing the questionnaire, the parties who became the research respondents included of Indonesian Port Company IV (IPC-IV), the *TPM* Operations Control Office, Customs and Excise, the Ministry of Trade, Importers, and Shipping Agencies. Respondents who fill out the questionnaire are people who are positioned in the office and people who are positioned in the field. Samples taken were 30 respondents.

Data analysis

Factors that influence the occurrence of dwelling time in Makassar Container Terminal are analyzed using the Relative Index (RI). The results obtained are displayed in tabular form.

III. The Results

Table 1 shows the factors that influence dwelling time at Makassar Container Terminal. The highest total value is in the post-clearance factor that is equal to 437, then the pre-clearance factor is 267 and finally, the customs clearance factor is 219, while the highest total sub factor value is dominated by two post-clearance factors and one sub-pre-clearance factor. The three highest orders are importers of 131 (post-clearance), port operators by 128 (post-clearance), and the behavior of entrepreneurs who hoard goods at 95 (pre-clearance).

Table 1. Total scores and scores of factors causing dwelling time

	Variables	1	2	3	4	5	∑	∑X	Total Score
Pre Clearance								267	89.00
Time to fulfill import licensing	X1	9	5	4	4	8	30	87	29.00
Port Operator	X2	7	8	4	5	6	30	85	28.33
Behavior of entrepreneurs who hoard goods	X3	4	7	7	4	8	30	95	31.67

Custom Clearance								219	73.00	
Importer		X4	6	8	8	5	3 30	81		27.00
Port Operator	X5	10	8	6	4	2	30	70	23.33	
Customs Officers	X6	10	10	4	4	2	30	68	22.67	
Post Clearance								437	109.25	
Shipping Agency	X7	5	9	8	3	5	30	84	21.00	
Port Operator	X8	0	1	5	9	15	30	128	32.00	
Trucking Availability	X9	4	8	6	4	8	30	94	23.50	
Importer	x10	0	1	4	8	17	30	131	32.75	

Source: Results of Analysis, 2020

The highest total score is in the post-clearances factor of 109.25, then the pre-clearance is 89 and the last is the customs clearance factor of 73. While the three highest sub-factor scores are the highest, i.e. the importer is 32.75 (post-clearances), the port operator is 32.00 (post-clearance), and the behavior of entrepreneurs who hoard goods amounting to 31.67 (pre-clearance)

Table 2 shows the Relative Index (RI) value of each variable. The Relative Index for the Pre Clearance factor is 0.593, the Customs Clearance factor is 0.487 and the Post Clearance factor is 0.728. From the analysis results above, it can be seen that the main factors causing dwelling time in Makassar Container Terminal are Post Clearance (0.728), Pre Clearances (0.593), and Customs Clearance (0.487), respectively.

Table 2. Relative Index of each variable

Variables	RI value	
Pre Clearance	0.593	59.33
X1	0.193	19.33
X2	0.189	18.89
X3	0.211	21.111
Custom Clearance	0.487	48.67
X4	0.180	18.00
X5	0.156	15.56
X6	0.151	15.11
Post Clearance	0.728	72.83
X7	0.140	14.00
X8	0.213	21.33
X9	0.157	15.67
x10	0.218	21.83

Source: Results of Analysis, 2020

Table 3 shows the ranking and level of agreement of each variable causing dwelling time at Makassar Container Terminal. The ranking or ranking of respondents towards the cause of dwelling time in Makassar Container Terminal is two Post Clearance factors and one pre-clearance factor. Consecutively from ranks 1 to 3, namely importers with a mean value of 4.37 and an approval rate of 87.33%, port operators with a mean value of 4.27 and an approval rate of 85.33% and the behavior of entrepreneurs who hoard goods with a mean value of 3.17 and an agreement level in the amount of 63.33%.

Table 3. Ranking and level of agreement of each variable

Variables	Mean	Rank	Degree of Agreement (%)	Internal meaning Mean
Pre-Clearance				
X1	2.90	5	58.00	Medium
X2	2.83	6	56.67	Medium
X3	3.17	3	63.33	Influential
Custom Clearance				
X4	2.70	8	54.00	Medium
X5	2.33	9	46.67	Medium
X6	2.27	10	45.33	Medium
Post Clearance				
X7	2.80	7	56.00	Influential
X8	4.27	2	85.33	Very influential

X9	3.13	4	62.67	Influential
x10	4.37	1	87.33	Very influential

Source: Results of Analysis, 2020

Table 4 shows the mean interval. Factors that greatly affect the dwelling time in Makassar Container Terminal are 2 frequencies with a mean interval 4.10 to 5.00.2 frequencies with mean interval values 3.10 to 4.00, medium factors with 6 frequencies with interval values 2.10 to 3.00 while factors with low effect on dwelling time were 0 (none) with interval values ≤ 2.

Table 4. Mean value intervals

Interval	Meaning	Frequency
< 2,00	Low	0
2,10 to 3,00	Medium	6
3,10 to 4,00	Influential	2
4,10 to 5,00	Very Influential	2
Total		10

Source: Results of Analysis, 2020

IV. Discussion

This study shows that the main factors causing dwelling time in Makassar Container Terminal are post clearance and pre-clearance.

In the post-clearance stage the behavior of importers/business actors who pile up containers in the *TPS* (Temporary Hoarding Site). The cost of stacking containers in Makassar Container Terminal is cheaper than renting a storage warehouse outside the port so that many importers prefer to use the port as a place to deposit their imported containers. In addition, importers consider the port to be safer. In the post-clearance process, the time required from the SPPB to the release of imported goods from the *TPS* (Temporary Hoarding Site) is 1.3 days while the government target is 1.5 days. The problems that arise can not be separated from all the activities of storing and making documents that stalled for days. The main factors causing these obstacles are lack of readiness and activeness of importers to immediately release goods and lack of readiness of *TPS* and other parties to facilitate the release of goods that have SPPB during working hours or outside working hours [9].

Besides the low cost, the performance of the equipment at the Makassar Container Terminal is not optimal because some of the equipment is maintained and some of the tools have been moved to Makassar New Port, consequently the service is not optimal. The average length of container dwelling time import in each terminal can be influenced by each terminal operator, and the number of containers served [10]. Reducing the waiting time for imported containers in the Container Terminal, can be done by reforming the payment system of import duties, improving facilities and supporting equipment, implementing technology in every field of container handling and information exchange, as well as paying attention to documents and warehouse readiness to shorten pre-release, customs, and post-release [11].

In the pre-clearance stage, the awareness of importers to speed up the handling of importing goods is very minimal, and tends not to immediately take care of the permit upon arrival at the container at the port as a result of the container will be buried. The amount of time allocation at the pre-clearance stage is influenced by several main factors, namely the time to fulfill imports (prohibitions and restrictions) where currently the majority of imported commodities are still required to fulfill import licenses *(prohibitions and restrictions)* from the relevant technical agencies. Then the behavior of entrepreneurs who hoard goods before submitting customs clearance based on the results of the latest data shows that importers only submit a notification of import of goods (Customs Clearance) after 3 days of unloading imported goods, both those that require permits or not [9]

The high flow of containers and limited area of facilities need to be served with good service management that can facilitate the process of entry and exit of containers in the Makassar Container Terminal environment, so as not to cause high utilization. To avoid congestion, and prevent possible future losses, analyze container flow and Yard Occupation Ratio (YOR) levels at the ports [12].

Dwelling time can be integrated with container loading and unloading, not affecting each other because dwelling time is waiting time for goods from the dock until the goods gate out meaning that the length of the process of loading and unloading containers is not due to dwelling time. Dwelling time depends on the administrative processes prevailing at the port [13].

The dwelling time at the Makassar Container Terminal is still 4.09 days, while the target of the government is 3.5 days. The high dwelling time, due to the high sedimentation time which still averages around six days or more, results in increased freight costs and will also affect the level of container stacking yard or Yard Occupancy Ratio (YOR) and cause congestion so that the port's operational performance will decrease [14]. However, the government is still trying to reduce dwelling time to increase port productivity not only on the stacking side but on the side of ship and field operations [15].

V. Conclusion And Recommendation

The main factors causing dwelling time in Makassar Container Terminal are a post-clearance factor with RI value of 0.728, a pre-clearance factor with RI value of 0.593, and customs clearance factor with RI value of 0.487. In the post-clearance stage, the most influential sub-factors were importers/business actors with an approval rate of 87.33% and port operators with an approval level of 85.33%. In the pre-clearance stage, the influencing factor is the behaviour of the entrepreneurs who hoard goods with an agreement level of 63.33%. To minimize the occurrence of dwelling time at Makassar Container Terminal, the port should increase parking fees and container fines, so that business operators/importers do not leave their imported containers at the port too long.

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