

EFFECTS OF COVID-19 PANDEMIC TOWARDS PORT OPERATION

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ABSTRACT

The hit of COVID-19 pandemic has affected many sectors, including the maritime sector. Because of this global health crisis situation, many sectors have to slow down their operation, and some have to put to a stop. This research aimed to identify the effects of COVID-19 pandemic towards port activities. There are several areas covered, however. It was found that effects of the pandemic on port operation and respondents' reaction towards the effects of the pandemic to ports obtained highest means. As the pandemic has influenced each country throughout the world, the improvement of a typical way to deal with tending to the difficulties of keeping laborers safe and economies alive will offer lessons which, if learnt, will unquestionably guarantee a superior future for mankind overall. COVID-19 will keep on gigantically affecting the shipping business for the foreseeable future, including the port operation.

Keywords: *COVID-19, effects, port operation, Pandemic*

1 INTRODUCTION

A pandemic is an infectious disease outbreak that has occurred through a wide area, for example several continents or across the planet, involving a vast number of people. A common endemic disease with a small number of affected individuals is not a pandemic. Widespread endemic diseases with a small number of affected individuals, such as recurrences of seasonal influenza, are usually omitted since they occur concurrently in small parts of the globe rather than spread globally. Throughout world history, a variety of pandemics of diseases have existed, such as smallpox and tuberculosis. The most lethal pandemic recorded in history was the Black Death (also known as The Plague), which caused the deaths of 75–200 million people in the 14th century. The term has not yet been used but has been used for later pandemics, including the 1918 flu pandemic. Present pandemics include COVID-19 (SARS-CoV-2).

The backbone of world trade is shipping. The port and harbor are very important for this trading activities due to vessel that will loading and unloading goods and dropping off and picking up passengers through ports and harbors. Not just that, most of the port and harbour offer facilities for the vessel such as repairing and maintenance. The port activities will be affected somehow due to worldwide economy is declining due to pandemic outbreak. For example, the outbreak apparently induces a 'deglobalization' process by forcing countries to lockdown borders, shutting down businesses and production, and preventing normal flows of goods, capital, and humans, at least temporarily. To conclude, the aim of this research is

to study the effect of pandemic towards port activities that focus on the operation wise and health and safety of the workers that works in the port, harbor and on-board ship.

Interest for transportation administrations is an inferred request, legitimately impacted by monetary cycles and global exchange. As needs be, the continuous and expected constriction of creation and utilization because of the spread of COVID-19 influences the whole transportation industry. The monetary decline has overloaded oceanic exchange streams which are extended to fall in 2020 [1]. The reduction underway and utilization exercises prompt a log jam in oceanic exchange, which thus decreases transporting request and port traffic and turnover. Existing evaluations are highlighting huge drops in oceanic exchange streams the second quarter of 2020 [2]. Remembering the heightened vulnerability encompassing any drawn-out figure, some watches are anticipating that global maritime trade should contract essentially.

The need to contain COVID-19 has prompted limitations on the section and exit of significant vehicle passageways through land, ocean, and air, just as confined or controlled development inside the nations [3]. Travellers' transport confronted especially incredible challenges because of regulation and severe isolate measures actualized for travellers and transport laborers. Confined passage was permitted just if security was guaranteed and, as needs be, in many nations, yachts, recreation vessels and traveler ships have been suspended, with an especially striking effect on the journey transport industry [3]. Cargo transport, particularly by street has encountered extreme breaks in the conveyance of its administrations.

In spite of the fact that COVID-19 has burdened transportation interest and port traffic, delivering kept on assuming a vital function in the worldwide flexibly chain, moving all merchandise, including fundamental products, isolate supplies, everyday necessities, and modern items [4]. This was vital in the circumstances where land coordination was not working appropriately because of land fringe terminations and control and isolate methods. The same number of nations acquainted limitations with land transport and outskirt intersections, keeping sea transport and ports operational got pivotal to protecting the well-working of worldwide gracefully chain [5]. An underlying examination of Asia-Pacific nations' reactions to COVID-19, shows an extraordinary comparability in the reactions, as nations have fortified the isolate and power over passage and disembarkation of cargo transport by such measures as forbidding team shifts in their own ports, denying groups from landing, disallowing contact with emptying faculty, and isolate of teams and ships for 14 days at harbours [6]. Notwithstanding the measures that expect to forestall the spread of COVID-19 as portrayed above, nations acquainted measures with encourage the leeway of merchandise, particularly of basic products and clinical supplies.

On the negative side, the delivery and coordination's market are straightforwardly influenced by negative patterns on the planet economy and the decrease oceanic exchange and port traffic volumes [7]. While the weight on the delivery business will be fairly facilitated because of the lower oil cost and dugout fuel levels, boat and port speculation can be relied upon to be adversely influenced as action and incomes go under weight because of some continuous turns of events. Right off the bat, lower worldwide exchange and more noteworthy flexibly chain vulnerability. Development in exchange volume can be required to decelerate [8].

The essential financial effect of COVID-19 contaminations comes from the restriction of political movement that are focusing on the rights and conditions of working crews and creation closures because of disease development or contamination control measures. The essential stun adds an optional stun to the flexibly of items or the acquirement of middle merchandise over the worldwide economy, prompting a lessening underway and utilization in significant nations, which can deaden the worldwide flexibly chain for a while [9]. Moreover, the port development would be much slower than anticipated.

As anticipated by numerous associations, the current year's port volume will decrease because of diminished interest. Severe isolate measures have had some impact on detainment and clog at the port, yet the vast majority of them are as of now settled. On a more certain side, an imaginative headway could be actualized, for example, speeding up of computerized coordination and shrewd port. Advancing brilliant coordination and port through the assembly of fourth modern innovations, for example, Block-chain, Big information, Artificial insight, Automation and robot (Guidance on ports' response to the coronavirus pandemic, n.d.). The keen port's freight dealing with at last encourages automated activities in ports and related coordination chain. Nonetheless, there are issues, for example, joblessness, schooling and preparing for the migration of existing workers [10].

2 RESEARCH METHODOLOGY

This research approached qualitative method with a more in-depth investigation on the effects of COVID-19 pandemic on the port activities in Malaysia, with a focus specifically on Port Klang, Penang Port and Port of Tanjung Pelepas. The selection of the seaports in Malaysia in this research was prompt since these three seaports are the country's most prevailing holder ports and they have been the main milestone for Malaysia's economy by associating the oceanic organization and the inland vehicle framework. With this selection, it will help to support this research to discuss this current issue that had happened, and three seaports are the major ones who got drastically affected by the COVID-19, pandemic, not just the port survival operations itself, but also the port workers and seafarers who worked there.

Table 1: Table for Determining Sample Size (Krejcie & Morgan, 1970)

Population, N	Sample, S
4500	354

This set of questionnaire presents easy-to-understand and straightforward questions that include three parts of the question, namely Part A was the part regarding the demographic background of the respondent, namely age, gender and current employment. Part B include questions related to the port operation during the pandemic COVID-19. At the same time, Part C contained questions related to how respondents deal with the outbreak based on their experiences. Likert Scales agree to disagree were used in this questionnaire where respondents were required to mark their answers. Table 2 below shows the details of the Likert Scale used in the questionnaire.

Table 2: Likert Scale (Joshi, Kale, Chandel, & Pal, 2015)

Scale	Score
Strongly Agree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

The reliability analysis is obtained using the analyze scale reliability analysis command. It is critical to determine whether the data is reliable enough to proceed. The Cronbach's Alpha technique was used to assess the validity of the data that the researcher had collected. If the Cronbach's Alpha-test for this data is less than 0.06, the data is unfit for further research.

Table 3: Rules of thumb for Cronbach Alpha Level of Reliability

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

In statistics, the Pearson correlation coefficient, often known as Pearson's r , is a measurement of the strength of a link between two variables and their affiliation with one another.

Table 4: Rules of thumb about Pearson Correlation Analysis

Size of Correlation	Interpretation
0.90 to 1.00 (-0.90 to - 1.00)	Very high positive (negative) correlation
0.70 to 0.90 (-0.70 to - 0.90)	High positive (negative) correlation
0.50 to 0.70 (-0.50 to - 0.70)	Moderate positive (negative) correlation
0.30 to 0.50 (-0.30 to - 0.50)	Low positive (negative) correlation
0.00 to 0.30 (0.00 to - 0.30)	Negligible correlation

3 RESULTS AND DISCUSSION

The data collection took 6 weeks, where the respondents that filled out the questionnaire had provided the required data for this study. The result shows the respondents majority is male with 94.1%, while female by 5.9%. The respondents were in the age group of 18 – 22 years old, which is 2 %. 198 of the respondents were in the age group of 23 – 27 years old, which 55.9 % the highest among all age group. 126 respondents, 35.6 % of them were in the age group of 28 – 32 years old. 18 of the respondents were in the age group between 33 – 37 years old, which is 5.1 % and lastly, 5 respondents were in the age of 38 years old and above, which had the percentage of 1.4 %. Based on the statistics for respondent's age, all selected ports in Malaysia are implementing a strong safety culture in terms of the worker's employment. This is because most of the respondents were young port workers and seafarers, which is in line with the current safety requirements needed by the World Maritime Organization. Employment status is divided into two factors: employed and laid-off. 97.2 % of the respondents were employed during the COVID-19 pandemic, 344 out of 354 of the respondents. Meanwhile, there were only 2.8 % of the respondents were being laid off, with a frequency of 10 respondents.

Based on the statistics for employment status, it can be clearly seen that most port workers and seafarers were still securing their job, although the pandemic strikes. Studies stated that the entire shipping industry's response to the pandemic has been exceptional and giving a positive sign. The business has met up and grown new conventions to lift boundaries to laborers changes.

Despite the positive side, unfortunately, 10 workers out of 354 were laid off due to the COVID-19 pandemic. Facing unemployment in the shipping industry is quite common during this difficult circumstance, for instance, Maersk, the world's most prominent compartment shipping organization, had to laid-off at least 200 workers to cut costs. The port workers and seafarer's head's office management were also a part of unemployment purpose. However, the number of workers laid off at the selected ports in Malaysia was not that significant as the market demand is still ongoing with enough workers.

Table 5: Demographic Profile Analysis

Demographic Profile		f	%
Gender	Male	333	94.1
	Female	21	5.9
Age	18 - 22	7	2
	23 - 27	198	55.9
	28 - 32	126	35.6
	33 - 37	18	5.1
	38 and above	5	1.4
Employment Status	Employed	344	97.2
	Laid-Off	10	2.8

Table 6 shows PO4 has the highest mean value of 4.30, which mean that PO4 is the most agree by respondents. The second highest mean value is 4.23, which is PO2, the third highest is PO3 and the lowest goes to PO1, which only have the mean value of 4.21. Meanwhile, for the standard deviation, the highest value is PO3, which has a standard deviation of 0.680, while the second-highest standard deviation value is PO 4 with a value of 0.621. The third highest standard deviation value is 0.613, which is PO2. The lowest is PO1, with a standard deviation value of 0.605. Based on the descriptive statistics of port operation during the COVID-19 pandemic, most respondents agreed with the statements given to them and showed that the operations at the selected port Malaysia were severely affected.

Table 6: Descriptive Statistics of Port Operation during COVID-19 Pandemic

ID	Statement	Mean	SD
PO1	In comparison between before and during the pandemic, the volume of goods received by the ports has shown reduction severely.	4.21	0.605
PO2	The number of ships docked at the port was decreasing badly during the pandemic.	4.23	0.613
PO3	The port operated in a minimal workforce, which leads to cargo congestion.	4.22	0.680

PO4	The operation of the port is slower during the pandemic.	4.30	0.621
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Table 7 shows RA4 has the highest mean value of 4.33, which mean that RA4 is the most agreed by respondents. The second-highest mean value is 4.29, which is RA2, the third highest is RA1 and the lowest goes to RA 3, which only has the mean value of 1.72. Meanwhile, for the standard deviation, the highest value is RA3, which has a standard deviation of 0.938, while the second-highest standard deviation value is RA4 with a value of 0.643. The third highest standard deviation value is 0.614, which is RA2. The lowest is RA1 with a standard deviation value of 0.609. Based on the descriptive statistics of respondent's actions during the COVID-19 pandemic, most respondents strongly agreed with the statements provided to them and showed that there were serious issues experienced by the workers at the selected port in Malaysia that needs to be addressed immediately.

Table 7: Descriptive Statistics of Respondents' Actions During COVID-19 Pandemic

ID	Statement	Mean	SD
RA1	Experiencing high exposure to health risk and mental health due to being stranded at sea.	4.21	0.609
RA2	Many workers got retrenched during the pandemic.	4.29	0.614
RA3	The worker's welfare did not been taken care of during the pandemic.	1.27	0.938
RA4	The workers are experiencing payroll deductions during the pandemic.	4.33	0.643

By using the SPSS to conduct the reliability test, the Cronbach's Alpha for port operation during the pandemic was 0.844, which is between 0.80 and 0.90, it is considered as good in the reliability test. Furthermore, for the respondent's actions on the outbreak, which the Cronbach's Alpha value of 0.762, which is between 0.70 and 0.80, is considered acceptable in the reliability test. As the result of all statements in the reliability test is acceptable, therefore, there is no independent question to be removed from the questionnaire to process further analysis.

Table 8: Cronbach's Alpha Reliability Test Result

Variable	Cronbach's Alpha	Internal Consistency	Reliability
Port operation during the pandemic	0.844	Good	Yes
Respondents' actions on the pandemic	0.762	Acceptable	Yes

The results obtained indicates that the port operations during the pandemic and worker's welfare have a correlation of $p=0.094$, which is the lowest from other independent variables. It means that port operations and worker's welfare have the lowest correlation. Furthermore, port operation and worker's retrenchment have the second-lowest correlation with the value $p=0.459$ at a significant level of 0.01. The correlation of port operation and worker's payroll deductions is the third largest, with the value of $p=0.462$ in the significant level of 0.01. Meanwhile, the highest correlation is $p=0.637$ in the significant level of 0.01. As all the variables indicate coefficient greater than zero, all correlations were positive relationship.

The correlation analysis clearly states that each statement on the port operation and respondent's action during the pandemic were having a significant positive relationship. What the research has shown that there is constant with the result of previous studies. The meaning here is that whatever circumstances the port workers and seafarers face during the pandemic and the whole operation are valid. The selected ports in Malaysia had experienced a reduction of good volume during the pandemic and had a significant positive relationship. This is because, during the lockdown, the ports were shut and the whole port operations got affected. Studies stated that if the ship or port does not operate daily, both parties will begin incurring losses. Furthermore, the operation of port also had been slower during the pandemic, and this had a significant positive relationship whereby the minimal workforce was implemented and led to port congestion. Both were correlated as during the pandemic; the only movement of essentials was allowed at that point in time. Most importantly, due to the lockdown of terminals and ports, there was a shortage of human resources to carry out daily operations (Chakraborty & Maity, 2020). Hence that is why there is a significant positive relationship between worker's retrenchment and payroll deductions.

Despite the positive relationship portrayed by most statements, it can be clearly stated that the port operation might be less significant or no significant relationship with worker's welfare. This can be seen that although the operation had been decreased vigorously, it didn't affect the worker's welfare as most port workers and seafarers were being taken care of properly by the shipping companies, especially during the pandemic in Malaysia. Although there was a less significant relationship on worker's welfare, the port operation during the pandemic indeed had given high exposure to worker's health risk and mental health, which worries them the most (The Impact of COVID-19 on Logistics, n.d.).

4 CONCLUSION AND RECOMMENDATION

In this research, a fair deal in distinguishing the port operation in Malaysia during the pandemic and how the workers dealt with the outbreak were achieved based on the information received and analyzed thoroughly. The shipping industry is a cyclical market as it goes up and down in cycles. However, the COVID-19 pandemic had affected the shipping industry badly. It had become a crisis in the financial markets worldwide, creating widespread fear among people about the virus as it is an exogenous shock to the market and the industry. Talking about the present circumstance, the port operation is down as it follows the financial markets closely. Demand for commodities and processed goods has decreased. Despite the low market position in terms of the global crew exchange crisis, there are challenges ahead ship owners.

Crew exchange has become tedious and costly for shipping companies. Despite the challenges, studies stated that as soon as the pandemic would end, it is likely to see a boom in operation because of a sudden increase in demand and supply of goods and commodities. According to the survey, most respondents strongly agreed that port operation changed completely due to the pandemic, and it has been a rough situation for port workers and seafarers to adapt to the new norm. The volume of goods received by the port experienced a reduction severely, implementing a minimal workforce which leads to port congestion and the operation being slower than before. This can conclude that not just ports in Malaysia but globally had been going through similar challenges that every worker needs to adapt.

With this unprecedented situation, undoubtedly, most respondents strongly agreed that this outbreak had been given them difficulties such as high exposure to health risk and mental health. A significant result had been proven whereby port workers and seafarers in Malaysia were worried about their health and mental health. This is because that they were away from their friends and family and lack of communication and connectivity with them made their anxiety increase vigorously. Besides, the restrictions safety measures being implemented were causing challenges for them to follow. Despite the challenges, a significant result on the worker's welfare can be seen where most respondents agreed that their welfares were being taken care of during the pandemic.

As the pandemic has influenced each country throughout the world, the improvement of a typical way to deal with tending to the difficulties of keeping laborers safe and economies alive will offer lessons which, if learnt, will unquestionably guarantee a superior future for mankind overall. COVID-19 will keep on gigantically affecting the shipping business for the foreseeable future, including the port operation. Its impact on port workers and seafarers worldwide has been devastating. The lessons learnt to incorporate the need to give more prominent acknowledgment to laborers and robust port operation for what is to come. Obviously, there will currently be expanded need to push ahead with a more noteworthy combination of the worldwide supply network, digitalization and normalization to improve the accommodation of the data needed by the experts for ships customs and to encourage and diminish the managerial burden for ship information suppliers.

The limitations of this research were solely based on qualitative methods. It is a question of future research to investigate cost-effective analysis. The continuity of this research would lead to accuracy and relevant inputs that can have a broader comparison between port operation in Malaysia. Significant efforts should be made in educating top-level management and government about port workers and seafarer's welfare during the pandemic regardless of the financial crisis they have experienced. Governments need to guarantee that viable and safe worker changes can be made so that supply chains stay open.

To avoid the abandonment of port workers and seafarers, the collaboration with The Transport Worker's Federation or Maritime Malaysia Organization, which represents workers will be helpful as they tend to ensure and treat laborers with nobility similarly as different workers in various areas. It has also raised concerns identifying with the effect of the conclusion of the government offices in various nations, which has left workers with no admittance to help in ports.

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