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VỤ TẮC NGHẼN KÊNH ĐÀO SUEZ NĂM 2021: NGUYÊN NHÂN, HẬU QUẢ, VÀ BÀI HỌC CHO VIỆT NAM

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Tóm tắt

Vụ tắc nghẽn kênh đào Suez năm 2021 đã gây ra nhiều thiệt hại kinh tế cho toàn cầu, cũng như làm lộ ra những điểm yếu trong hệ thống logistics toàn cầu. Bằng việc tổng hợp các nghiên cứu đi trước, chúng tôi muốn xem xét nguyên nhân và hậu quả của vụ tắc nghẽn, từ đó đưa ra khuyến nghị để Việt Nam phát triển hệ thống logistics. Các nghiên cứu cho thấy lỗi con người đã gây ra vụ tai nạn, và để lại hậu quả kinh tế nghiêm trọng, vẫn còn dư chấn kể cả khi vụ việc đã kết thúc. Tuy nhiên, Việt Nam không bị ảnh hưởng nhiều từ vụ việc, bởi hệ thống logistics của Việt Nam chưa phát triển hết tiềm năng do nhiều lí do. Mặc dù Việt Nam có thể học được nhiều bài học thông qua vụ việc ở kênh đào Suez, chúng tôi tin rằng trong tương lai gần, Việt Nam sẽ được lợi hơn trong việc giải quyết các vấn đề còn tồn đọng để phát triển một hệ thống logistics hiện đại hơn.

Từ khóa: hệ thống logistics, vụ kẹt tàu kênh đào Suez, Việt Nam, yếu kém logistics

2021 SUEZ CANAL OBSTRUCTION: CAUSES, IMPLICATIONS, AND LESSONS FOR VIETNAM

Abstract

The obstruction of the Suez Canal in 2021 caused significant damage to the global economy and revealed weaknesses in the global logistics system. Through reviewing literature, we examine the causes and consequences of the incident, as well as the current state of Vietnam's logistics system, and give recommendations for Vietnam to improve its logistics system. Literature shows that the

incident was caused by human errors, and caused significant damages to the global economy, felt even after blockage was resolved. However, Vietnam suffered little from it, having a logistics system that has not yet reached its full potential due to numerous factors. Though lessons can be drawn for Vietnam from the incident in Suez, in the immediate future, it will be more beneficial for Vietnam to solve its current problem and develop a better logistics system.

Keywords: logistics system, Suez canal obstruction, Vietnam, logistics weakness

1. Introduction

The Suez Canal is a crucial transportation route that connects the Mediterranean Sea to the Red Sea, providing a direct shipping route between Europe and Asia. The canal, which runs through the Isthmus of Suez in Egypt, allows ships to avoid the costly and time-consuming trek around the southern edge of Africa. There are numerous ways to understand how crucial the Suez Canal is to transportation. Firstly, the travel time is cut by up to 7,000 kilometres, or roughly 10 days, when travelling by ship from Asia to Europe. Next, fuel and operating expenses are reduced due to shorter routes. More efficiency in supply chain management is also made possible by the time and fuel savings. Thirdly, global trade is promoted with more favourable access to significant markets and trading partners, enabling the efficient movement of products and services. Therefore, whenever the canal is struck or obstructed, there will be a big impact on world trade.

Unfortunately, in March 2021, a container ship named Ever Given, one of the biggest container ships in the world, owned and operated by the Taiwanese shipping firm Evergreen Marine, became aground in the Suez Canal, severely disrupting international transport. The ship became trapped in the canal and blocked all traffic going in either way.

The incident disrupted international trade and resulted in a backlog of hundreds of ships waiting to pass through the canal, resulting in major financial losses for enterprises. The Ever Giving was finally refloated and transferred to a neighbouring lake for inspection after nearly a week of laborious efforts by the Suez Canal Authority to free the ship.

The incident brought attention to the Suez Canal's significance as a vital transit route and the possible repercussions of disruptions in international trade. Also, it drew attention to the difficulties in controlling the growing capacity of container ships as well as any potential dangers. This issue serves as a reminder of how crucial effective risk management and emergency planning are in the shipping sector, and also emphasises the necessity of global coordination and collaboration to deal with interruptions in transportation and trade.

For those critical impacts, we would like to reinvestigate and deeply analyse the case to answer the two questions:

(1) What are the causes and general implications of the obstructions?

(2) What can Vietnam learn from the situation to improve its marine logistic chain and transportation?

2. Methodology

This paper functions as a review article, and uses the qualitative method through the use of credible secondary sources such as peer-reviewed literature, as well as analysis columns on media outlets to get an understanding about the causes and effects of the Suez Canal Obstruction, as well as the current state of Vietnam's logistics system. From that base, we provide an analysis reflecting the previous results regarding the causes and effects of the obstruction, and several recommendations are given to Vietnam to improve its current logistics system, as well as avoiding a similar incident in the future.

3. Literature Review

The papers in this segment will be presented in a chronological order, followed by a summary of the consensus and difference between authors.

3.1. Literature regarding causes of the obstruction and implications

Despite the Suez canal obstruction occuring only recently, due to its significance to the global supply chain, several literature has been dedicated to it.

Lee and Wong (2021) analysed the legal impact, risks, and liabilities of the incident to the supply chain. According to their research, the obstruction caused the congestion of over 370 ships, causing the disruption to the delivering of over $9 billion worth of goods per day, equivalent to $400 million worth of trade per hour, totalling at $54 billion trade loss over the span of six days. Damage might have been higher due to disruption in delivery of essential goods, including oil and gas, potentially causing inflation and further trade loss. Damage also extended to the insurance sector, causing about $31 billion in damage, and the manufacturing sectors due to the delay of delivery of components. In terms of politics, many countries' plans were halted, most notable is the Belt and Road project of China. Regarding causes, none was conclusively given by the authors, with Egypt and Panama, the authority behind the Suez canal and the Ever Given, respectively, conducting their own investigation. Further causes could have been weather, though the authors noted it to be unlikely, software and human errors, as well as managerial failure. Solutions given by the authors include for the Egyptian authority to widen the canal to accommodate large ship like the Ever Given, implementing a set of contingency plans alongside regular manoeuvres, implementing vessel traffic controls; for the owners and operators of the Ever Given to scrutinise the ship before shipment, and insuring themselves for catastrophic events; and for countries to explore alternative routes, such as the North Sea Route.

AlFadhli et al. (2021) analyzed the effect of the obstruction to global crude oil price using mean-adjusted returns as used by Brown and Warner (1985), and the Dodd and Warner (1983) and Draper (1984) market model method. In the event window of 1, 3, and 5 days after the incident, the first method produced an abnormal returns of 6.86%, 2.86%, and 1.96%, respectively, while the second approach produced an abnormal returns of 2.82%, 0.57%, and 1.34%, respectively. The t-test helped reject the equal means hypothesis and showed that there was a difference in mean abnormal returns in both models, implying that global crude oil price was positively affected by the obstruction.

Fan et al. (2022) constructed a data-driven Bayesian network (BN) model to analyze important risk influential factors (RIFs) contributing to canal accidents, which was tested using the 2021 Suez Canal obstruction to gather useful insights. Data were collected from established databases and accident reports, which generated a list of potential RIFs. The data-driven BN model is constructed first through the generation of the structure between different nodes in the network, using the Tree Augmented Network (TAN) learning method, and second through calculating the CPTs by the Gradient method. The model is then validated by D-separation, expert knowledge, sensitivity analysis, and case study. Overall, in the context of the Suez case, the model showed five contributing factors with high probabilities, which are insufficient information (poor quality of equipment data, falsified records of information, reliance on a single piece of navigational equipment, no working indicators or light for necessary observation, etc.), poor communication, complacent issue (underestimation of the severity of an issue), dysfunctional management system, and inadequate safety culture. The authors recommended captains take training courses aiming at navigating ships in difficult terrain, such as restricted waters within wind and current effects for the individuals.

Özkanlisoy and Akkartal (2022) looked at the effects of the obstruction on the global supply chain and delivered some insights and recommendations. Some of the effects listed by the authors are: ripple effect (deficiencies were yet to be made up, coupled with price increases due to fear of shortages), transport route change and transport distance increase (caused by ship having to rerouted or queue up), effect in transportation capacity (showing a 60 to 80% reduction in export capacity on Asia-Europe route), causing wider logistic bottlenecks (as the ship was carrying components used to manufacture multiple consumer goods), and a trade cut of approximately $40 billion, among other consequences. Several recommendations are given by the authors, including for firms to identify local suppliers in case of emergency, alternative routes and methods of transportation, more agile and flexible supply chains, the creation of a handbook to be used in case of supply risks and disruptions, among other advice.

Overall, the consensus is that the Suez Canal obstruction had a major impact on the global supply chain, causing delay in delivery of goods, price increases, panic, financial and trade loss, and disruptions in projects of micro and macro scales. Reasons for the obstruction are implied to be human errors, not just limited to the crew of the ship but extended to the managerial sectors. Recommendations given usually include more training for the crews, flexibility and agility in managing logistics, exploring alternative routes and methods of transportation, and a contingency plan to be used in such emergencies.

3.2. Literature regarding Vietnam's logistics capability

Pham and Nguyen (2020) analyzed the status of logistics development in Vietnam, deriving the result, limitations, and causes of logistics development in Vietnam, and finally offered some recommendations. They assessed that Vietnam's logistics system has the advantage of high market growth rate, increasingly improving regulating legal system, more efficient performance throughout the years as shown by improving LPI, and good infrastructure and training programs. However, the sector also had some limitations such as development not up to its potentials, with the main type of services provided being low-valued, weak infrastructures (especially weak transportation),

overlapping and ineffective organization and management, and the lack of high-quality human resources. These limitations were caused by unrealized economic potentials of regions, entangling regulations, limitations in enterprise size, weak statistical work, etc. Some recommendations given by the authors include the development of goods supply for the economy, development of diversified logistic services in partnership with foreign ventures, unifying many logistics organisations into one, development of logistic infrastructures such as deep-water ports, highways, rail networks, among other recommendations.

Nguyen et al. (2021), through the use of a regression double log model, found that logistics has an impact on Vietnam's economic development. Specifically, the elements of infrastructure, on-time shipment, and competitive price have an extremely positive impact on the economy, while convenient custom had a negative influence, which the authors explained by stating that Vietnamese customs are ineffective with too many legal issues. They noted that Vietnam's logistics activities were quite weak and had yet to develop to its full potential, yet were hopeful about its future prospects, such as the development of new warehousing facilities, integrating existing infrastructure with other logistic activities, developing new technological solutions, etc. They also noted that the development of e-commerce had opened up several opportunities for the logistic sector in Vietnam.

Nguyen (2022) looked at the effect of the COVID-19 pandemic on the financial performance of Vietnamese logistics enterprises, through the use of the quantitative method, with data gathered from financial reports of 2019 and 2020 of Logistics enterprises listed on the Vietnam Stock Exchange, as well as a research sample of 114 firms. While noting that the pandemic simultaneously put a strain on the logistics system, and created opportunity for said system through the development of e-commerce, the author found that performance among Vietnamese logistics firms, indicated by returns on assets, receivable turnover, and leverage have decreased due to the pandemic dampening export activities. The authors noted that logistics firms had taken steps to mitigate the effect of the pandemic, including reducing wages and/or working hours, cutting costs, digitization, investing in new technology and human resources, among other solutions. The government and numerous logistics associations also sought solutions such as tax incentives, reduced road expenses, and worker supports to restore commercial operation.

Overall, different research show that Vietnam has a developing logistics sectors with certain advantages and potentials, which has been contributing greatly to economic development, yet hampered by problems such as weak infrastructure, entangling bureaucracy, and low-quality workforce, among other things, which were further exacerbated by the COVID-19 pandemic. Solutions to the problems including developing infrastructures such as deep-water port, high-quality highway, expansive rail networks, restructuring the bureaucracy, and educating an effective pool of human resources.

4. Current situation

4.1. Current situation of global logistics

According to Bartholomeuzst (2021), the incident at the Suez Canal was only one of many serious disruptions to the global supply chains already destabalized by the coronavirus pandemic. He contended that the incident revealed the susceptibility of global supply chains to interruption, particularly the degree to which developed economies depend on China for essential consumer goods and medical supplies. Moreover, the global supply chain was already further destabalized by a shortage of semiconductors, and a deep freeze and power outage in Texas (Kumon, 2021). Combined with the obstruction in the Suez Canal, the global supply chain would take even longer to recover from the coronavirus.

Several effects of the incident to the global logistics system ranged from massive accumulations of empty containers in or close to the ports of advanced economies, a lack of containers in China, an increase in costs for both transporting and storing containers by 400%, and overburdened ports (Bartholomeuzst, 2021). Shipping companies were also affected, with the shares of Denmark's A.P. Moller-Maersk, the world's largest shipping company, fell more than 9%, while investors scrambling to buy currencies of resource-rich nations like Australia and Canada (Kumon, 2021). The government sector was also affected, with tankers carrying oil from Saudi Arabia, Russia, Oman, and the U.S waiting on both end of the canal, amounting to 10 tankers carrying 13 million barrel of crude oil (Kumon, 2021).

4.2. Current situation of Vietnam's logistics

4.2.1. Strengths

Vietnam possesses many elements advantageous to the promotion of logistics development, such as a large population size skewing towards young people, stable and generally sensible governance, and participating in many trade agreements. In recent years, logistics activities in Vietnam have made great progress and import and export turnover has increased rapidly. Specifically, according to figures from the Ministry of Industry and Commerce, in the first nine months of 2022, the total import-export turnover reached 557.93 billion USD, in which, exports reached US$282.35 billion (an increase of 17.2% compared to the same period in 2021); imports reached $275.58 billion, (an increase of 12.8% compared to the same periodin 2021). Overall, the trade surplus in the first 9 months of the year reached 6.77 billion USD, of which logistics activities played an important role.

Thanks to the significant transformation of businesses supplying and utilizing logistics services, the Vietnamese logistics sector is placed 11th internationally among 50 rising logistics markets by Agility Logistics in 2022, and it is anticipated that the logistics market in Vietnam would develop at a 5.5% annual rate between 2022 and 2030.

4.2.2. Weakness

The report published by Agility in 2022 shows that Vietnam's logistics costs account for more than 20% of GDP, with the average logistics cost in the world being only about 11% of GDP. This shows that logistics costs remain a challenge for Vietnamese logistics system. Moreover, the current bottleneck in infrastructure from airports, seaports, warehouses, etc. has not been standardized and dispersed. The planned warehouse system, in particular, differs between the North and the South, which places restrictions on the ability to transfer commodities across the nation. In addition, though

e-commerce has become more prevalent in Vietnam, especially in the context of the COVID-19 pandemic that gave the country the opportunity to develop further in that region (Nguyen 2022, Nguyen et al. 2021), it has yet to become widespread among business and contribute significantly to the sector, as seen by the contraction of the sector during the pandemic (Nguyen, 2022).

4.2.3. Effects from the obstruction

The incident affects not only Eurasian trade flows but also trade between Asia with North American countries. Specifically in the case of Vietnam, according to Duong (2021), the country suffered from delayed shipment, both to and from it, and the related financial damage. Cosco Shipping Peony, a container ship with a capacity of 13,500 TEU transporting goods imported from North American ports to Vietnam was stuck at the canal, and forced to shift its expected date of arrival to the Cai Mep – Thi Vai Port (CM-TV) to April 12, 2021, from April 6. Its fate was shared by nearly 180 other ships, some of which were bound to Vietnam, by March 29. Moreover, exports from Vietnam also suffered, because the incident not only affected Vietnamese goods exported to Europe, but also goods going to North American east coast port. For example, Arnold Maersk, a container ship with a capacity of over 8,000 TEU containing a large amount of Vietnamese exports to North American countries, left the CM-TV port on March, but had to divert to the Cape of Good Hope to avoid passing through the Suez Canal. This resulted in a longer voyage of over 6,000 kilometers, leading to transit time being extended by a week and further cost of more than US$400,000.

In addition, container ships from Europe and North America to Asian countries not only carry cargo containers but also carry a large number of empty containers to supply to export packing enterprises. With empty containers already in serious shortage in Asian countries due to the COVID pandemic, the incident at the Suez Canal only further aggrevated the situation.

We further contend that the resulted congestion of ships caused by the incident also stretched European and Asian ports to their limit as ships poured in to unload and load cargo in a short period of time. And since feeders also had to wait for the mother ship to return cargo at the transshipment port for further transport to branch ports, the berth stress spread to small ports in Asia, and by extension to Vietnam.

However, we noted that as of April 5, freight rates on the main maritime routes of Asia-Europe and Asia-North America did not increase; only on other international shipping routes, such as Asia to South Africa, West Africa, South America did rates increase. Considering the size and development of the Vietnamese logistic sector, coupled with the aforementioned information, we believe that the incident, though having far-reaching consequences internationally, did not seem to heavily affect Vietnam.

5. Implications

5.1. Causes of the obstruction and implications for the global logistics network

The Suez Canal Authorities acknowledged in a press conference that there may have been technical or human faults involved in the ship's grounding and that weather factors were not the

primary reasons. Although, as of the writing of this article, there has not yet been a public declaration regarding the reasons of the accident, we believe the study of Fan et al. (2022) offers a complete and methodical viewpoint taking into account vessel factors, environmental factors, and human factors, in which human errors are implied to be the main causes of the accident, summarized as follows:

(1)There is a probability of 86.9% for the Ever Given lacking adequate knowledge. Poor data quality from the equipment, fabricated information records, dependence on just one piece of navigational equipment, and the absence of functional indicators or lighting for required observation are all examples of lack of information

(2)There is a 71.9% probability for the Ever Given communicating ineffectively. Poor communication not only affects the everyday routine tasks that carry a high risk, but also worsen the situation in an emergency reaction, whereas communication makes teamwork on board safe and effective.

(3)There is a probability of 84.8% for the Ever Given getting involved in the lackadaisical problem. When seafarers are careless about their responsibilities, underestimate the urgency of the situation, and are complacent, it can result in actions that cause subsystem breakdowns

(4)There is a probability of 90.2% for the Ever Given with an ineffective management structure. The management system consists of port service, shore management, maintenance management, bridge resource management, bridge team management, qualification examination, training, practice, and emergency exercise. Technical or non-technical mistakes in restricted waters are a result of dysfunctional management systems that are caused by organisational and human variables.

(5)There is a probability of 94.4% for the Ever Given having a poor safety policy. The way things are done on board a ship can demonstrate safety culture, and reflects the crew's safety principles and values. This may be affected by business demands and management considerations.

5.2. Lessons for Vietnam

Though Suez Canal obstruction does affect logistics in Vietnam, the effect is miniscule compared to the greater impacts on the overall global logistics system in general. In the short terms, we believe Vietnam should focus on improving its logistics system into a more advanced one. One way it could accomplish this is through building better infrastructures, such as deep-water ports, railways, airports, highways, etc., with more efficient cost and time, as the country is now notorious for projects being behind its schedule. Moreovers, it should invest more into the education system, so that it could produce high-quality workers in the logistics field, being capable of offering high-quality and high-value services. Other solutions include solving the issues with inefficient customs, which can be achieved through reducing administrative processes and increasing transparency, completing the legal frameworks for the development of the logistics sector, combining the currently many logistics organizations into one single unified organization so that activities and coordinations can be carried out with more ease.

However, in analysing the case of Suez Canal blockage, we all can take into consideration some lessons to improve the situation in the future. First, we believe that in shipping, vessels must acquire

sufficient and updated information, particularly when operating in restricted waters, and communication during shipping, as well as management systems must be improved, so that directives and actions are clear, accurate, and carry as low a risk as possible. Furthermore, captains should enrol in training programs designed to prepare them for navigating ships in challenging environments, such as constrained waterways. Ships should be inspected on a regular basis to ensure seaworthiness, and insurance policies should be checked to ensure that coverage for major casualty event exist. Moreover, logistics firms could create a handbook to be utilised in case of supply risks and disruptions, and identify other local suppliers in case of an emergencies, alternative routes and means of transportation, as well as more adaptable and agile supply chains, among other methods.

6. Conclusion

Through the review and summary of literature, we can conclude that the causes for the Suez Canal obstructions are human errors, more specifically ineffective management, poor communication, safety culture among crews, and a general environment of complacency. We can also summarize that the incident did cause a tremendous amount of damage to global trade and economy, the shockwave of which could still be felt even after the incident had been resolved. Even so, we believe that Vietnam did not suffer much from the incident, as its logistics system is not advanced enough to get intertwined in such a large-scale incident. Vietnam has the potential to be a logistics powerhouse, yet it is limited by weak infrastructures, low-valued services, inefficient legal framework, among other factors. Even though the Ever Given incident did give Vietnam, as well as many other countries valuable lessons regarding marine logistics management, our opinion is that these lessons would only matter in the long term, and for the immediate future it is more beneficial for Vietnam to rectify its existing problems and develop a more advanced logistics system.

This research relies mainly on previous, secondary literature, data, and analysis. Though the literature and analysis we have compiled are reliable, we believe that further research using original data and information would be more accurate and reliable. Moreover, further research made by authors more well-versed in the field of logistics, supply chain, or regulation regarding the two issues, can clarify issues facing Vietnam's logistic sector, as well as proposing more detailed and comprehensive solutions for both the private and public actors.

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