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Maritime Transport during COVID 19 Pandemic: Evidence from Asian Countries

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Abstract. The outbreak of the COVID-19 was declared a pandemic by the World Health Organization during their virtual press conference on 11 March 2020. The event can be termed a 'Black Swan' because of its low probability and devastating impact on all sectors of the economy. Maritime Transport that accounts for 80% - 90% of the world trade, also witnessed the unprecedented impact. The paper examines the maritime transport industry during the COVID 19 pandemic.

The maritime transport performance of 12 Asian countries has been analyzed. The data set has been collected for the period spanning from January 2018 to June 2021 from the United Nations Conference on Trade and Development (UNCTAD) website to measure Maritime Transport's performance during the COVID-19 pandemic. The findings reveal that the indicators - port calls, median time spent in ports and liner shipping connectivity was affected due to the COVID-19 pandemic.

Keywords: COVID-19, Maritime Transport, Port Logistics, Asian Countries

Introduction

The COVID-19 Pandemic has created a disruption in normal business activities across the world since the early months of 2020. The pandemic has swept across all nations small or big and had brought economic activity to a standstill in the initial months of the 2020. Most countries have either witnessed an economic contraction which has been unprecedented in scale with many experts comparing the COVID-19 pandemic to the Spanish Flu of 1918.

"Maritime Transport is the backbone of the global trade and global economy" (UN Secretary-General Ban Ki moon's message on World Maritime Day 29 September 2016). Maritime Transport is of great importance in the modern world as it is not possible for any country to remain isolated and fulfil the needs of its people. Countries depend on other countries for goods that they don't produce and import the same from each other. Global waterways therefore become the most effective way of transporting such goods across the world. 80% of the global trade by volume (UNCTAD, 2019) is being carried out through ships and seaports thus making maritime transport an important aspect of global trade and development.

The economic and health calamity brought about because of the pandemic has changed the contours of maritime transport and trade and this has the potential to subsequently change the growth trajectories of many economies. The paper intents to examine the performance of the maritime transport during the COVID – 19 pandemic.

Literature Review

Oyenuga (2021) investigated the impact of the pandemic on the Maritime Transport Sector at the global and African levels. The findings revealed that the short-term impact of the pandemic was a decline in the volume of trade transported by maritime shipping, disruptions due to re-routed shipments, maritime defaults and bankruptcies, and stranded seafarers.

Haralambides and Cullinane (2021) discussed the impact of COVID 19 pandemic on the shipping sector and container ports. Their findings revealed that the dry bulk and tanker shipping were affected due to the reduced demand in the pandemic period. However, Liner shipping did favourably well during the pandemic on account of blank sailings. There was a huge decline in the container throughput for the ports worldwide.

Menhet et al (2021) studied the impact of Covid-19 scenario in Malaysia on four maritime sectors for the period January to July 2020. Their findings revealed that maritime tourism was the most affected, as it is a non-essential service, and encountered total closure during lock down. Shipping was less affected in comparison to other sectors, owing to the high demand for Personal Protective Equipment and test kits for COVID.

Yazir et al (2021) examined the impact of COVID-19 pandemic for the shipping industries and found that the dry bulk, tanker, container, and cruiser sector was affected the most. Their findings revealed that the awareness of COVID-19 can reduce operational risk and further improve business performance for the maritime related industries and authorities.

Alamoush, Balini and Ocler (2021) discussed the impact of COVID 19 and gave an overview of ports, shipping, and supply chains and other aspects of the maritime industry. The study also suggested that ports need to maintain resilience by building risk management plans and expanding the circle of cooperation regionally and globally and include the maritime supply chains.

Millefiori, L. M., Braca, P., Zissis, D., Spiliopoulos, G., Marano, S., Willett, P. K., & Carniel, S. (2021) discussed the mobility of wet bulk and dry bulk through a global network of Automatic

Identification System (AIS) data which closely represented the world merchant fleet of shipping companies.

Research Objectives

The research objectives of the study are –

1. To examine the performance of the ports during the COVID 19 pandemic
2. To examine the ports efficiency during the COVID 19 pandemic
3. To examine the performance of the maritime transport during the COVID 19 pandemic

Research Methodology

The twelve Asian economies – China, Hong Kong, Taiwan, India, Indonesia, Japan, Malaysia, Philippines, Singapore, Sri Lanka, Thailand, and Viet Nam were selected for the study. The sample size is 12 countries. The data used for the study is secondary and has been obtained from the website of United Nations Conference on Trade and Development (UNCTAD) for the period spanning from January 2018 to June 2021 to measure Maritime Transport's performance during the COVID-19 pandemic. The variables considered for the study are -

- Number of port calls
- Median time spent in ports
- Liner shipping connectivity index

Results and Discussion

The performance of the ports is measured by the number of port calls. A higher count of port calls allows for a higher service frequency of imports and exports (UNCTAD, 2019). The descriptive statistics of the port call for the thirteen Asian countries for the period January 2018 to June 2021. is presented in Table 1.

Table 1. Results of Descriptive Statistics for Number of Port Calls (All Ships)

Economy	Mean	Median	Standard Deviation	Minimum	Maximum
China	126995	125613	7836	117591	136248
Hong Kong	10514	11416	1482	8128	11633
Taiwan	16930	17102	826	15698	18351
India	20625	20210	1294	18799	22839
Indonesia	82972	80220	7492	73549	95283
Japan	133682	130659	7885	128924	151234
Malaysia	18839	18469	1017	17881	20785
Philippines	20838	20181	2486	17945	24749
Singapore	28647	30114	2617	25552	31038
Sri Lanka	2920	2930	263	2650	3433
Thailand	14334	14329	860	13039	15433
Viet Nam	8494	8954	3910	3341	15115

As noted from Table 1, Japan and China have a high number of port calls indicating a strong maritime supply chain. The percentage change in the number of port calls has been analyzed for all ships and by ship type for the period January 2018 to June 2021 and presented in Figures 1 – 9.

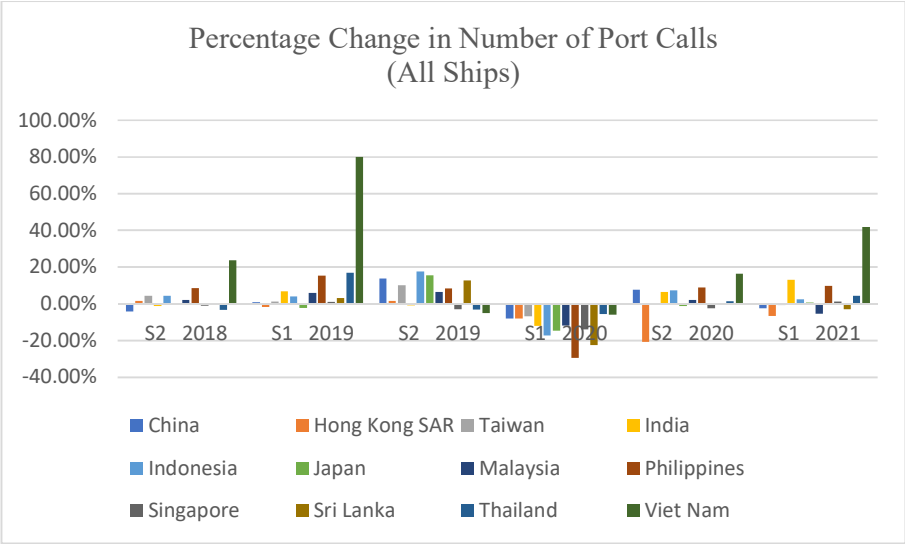

Figure 1: Percentage Change in Number of Port Calls (All Ships)

Figure 1 has shown that the decline in the number of port calls for all ships is the highest for the economies of the Philippines (29.32%) and Sri Lanka (22.47%) during the Season 1 of 2020.

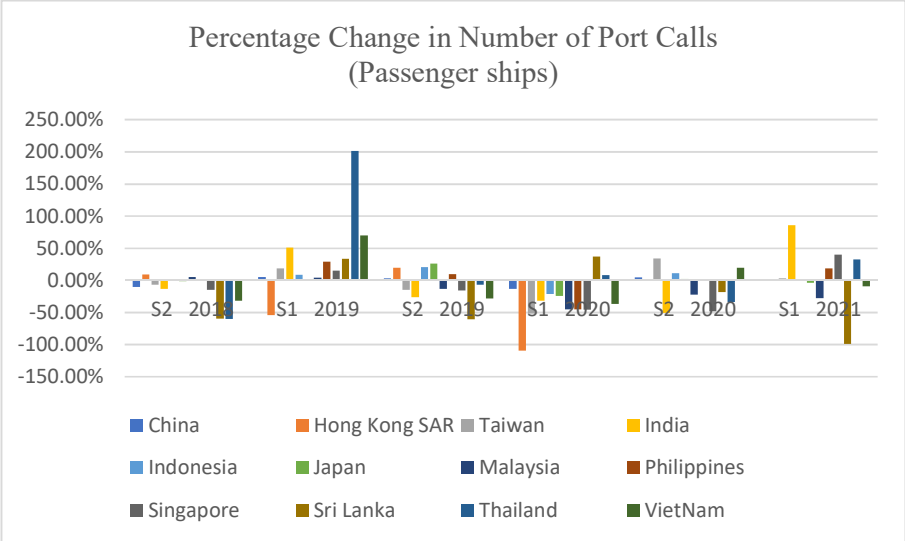

Figure 2: Percentage Change in Number of Port Calls (Passenger ships)

As observed from Figure 2, the decline in the number of port calls for Passenger Ships is the highest for the economies of Hong Kong (109.32%) and Taiwan (51.57%) during the Season 1 of 2020.

Further, Thailand witnessed an upside of 7.91% and China had the least decline with 13.67% during the Season 1 of 2020.

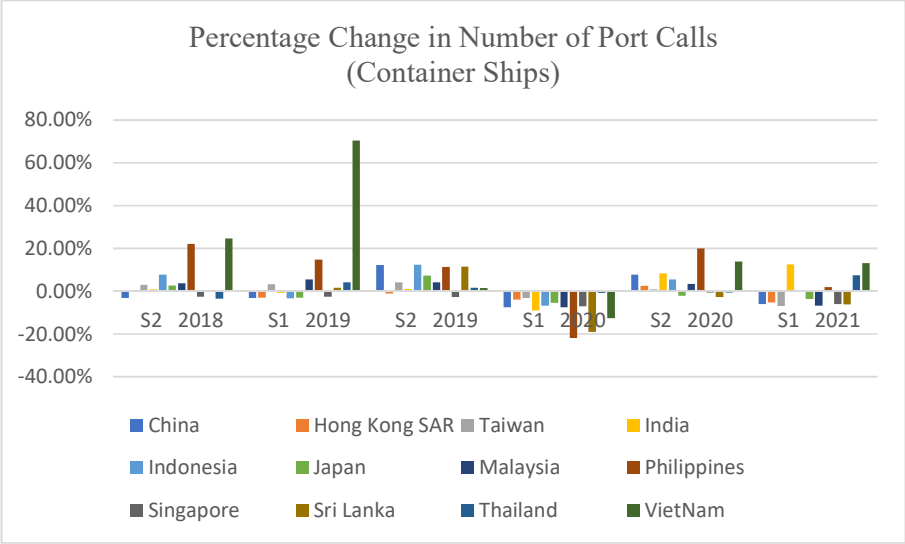

Figure 3: Percentage Change in Number of Port Calls (Container Ships)

As noticed from Figure 3, the decline in the number of port calls for Container Ships is the highest for the economies of the Philippines (21.80%) and Sri Lanka (18.91%) during the Season 1 of 2020. Further, Thailand had the least decline of 0.81% during the Season 1 of 2020.

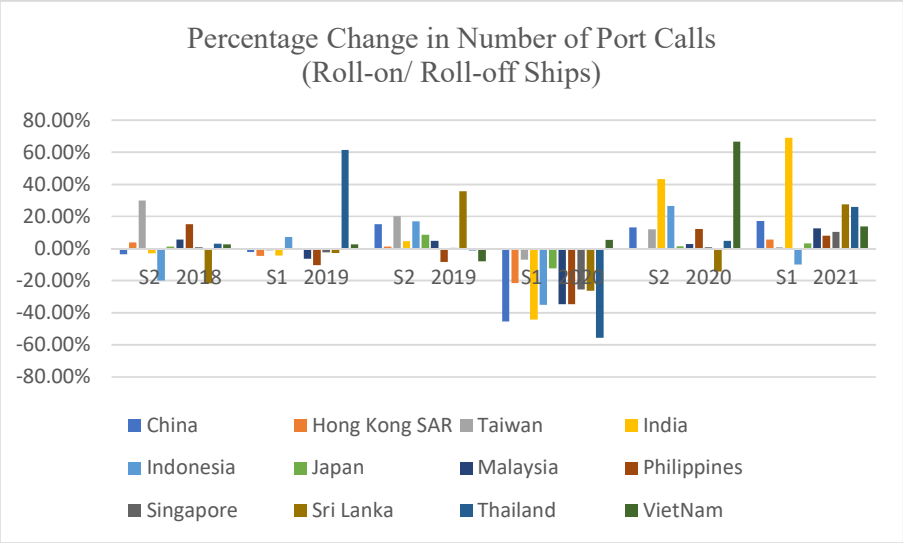

Figure 4: Percentage Change in Number of Port Calls (Roll-on/ Roll-off Ships)

Figure 4 has shown that the decline in the number of port calls for Roll-on/ Roll-off Ships is the highest for the economies of Thailand (55.65%) and China (45.53%) during the Season 1 of 2020. In addition, Viet Nam had a positive incline of 5.41% during the Season 1 of 2020.

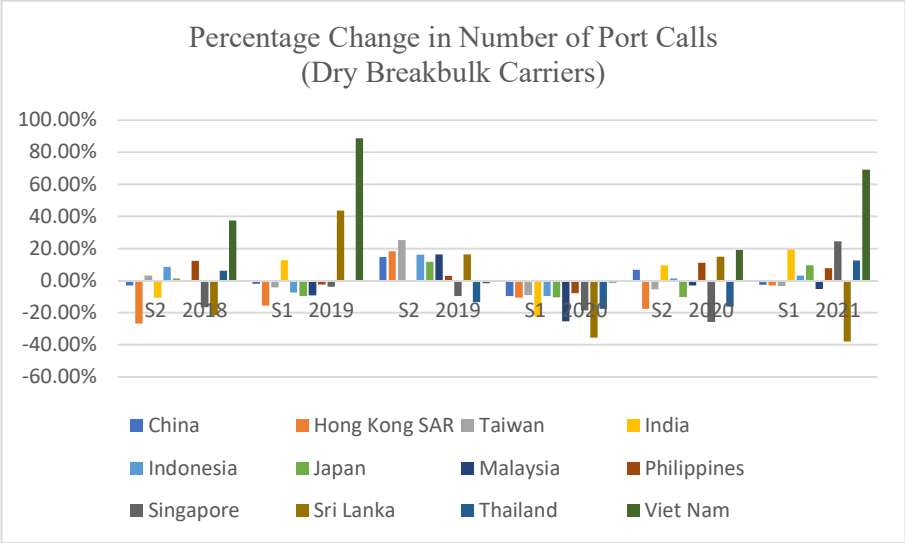

Figure 5: Percentage Change in Number of Port Calls (Dry Breakbulk Carriers)

Figure 5 has shown that the decline in the number of port calls for Dry Breakbulk Carriers is the highest for the economies of Sri Lanka (35.67%) and Malaysia (25.34%) during the Season 1 of 2020. Moreover, Viet Nam had the least decline of 1.27% during the Season 1 of 2020.

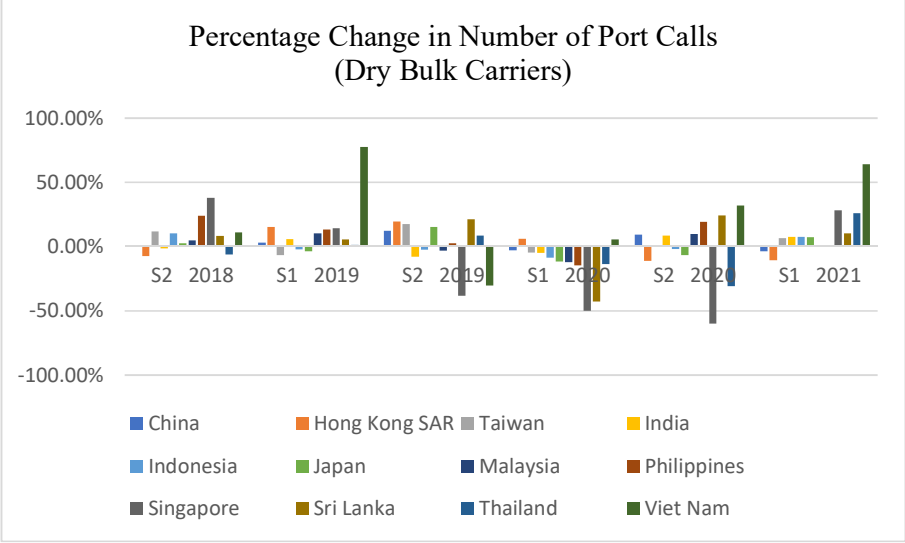

Figure 6: Percentage Change in Number of Port Calls (Dry Bulk Carriers)

As observed from Figure 6, the decline in the number of port calls for Dry Bulk Carriers is the highest for the economies of Singapore (49.84%) and Sri Lanka (42.74%) during the Season 1 of 2020. Further, Hong Kong and Viet Nam witnessed an upside of 6.27% and 5.56% respectively during Season 1 of 2020.

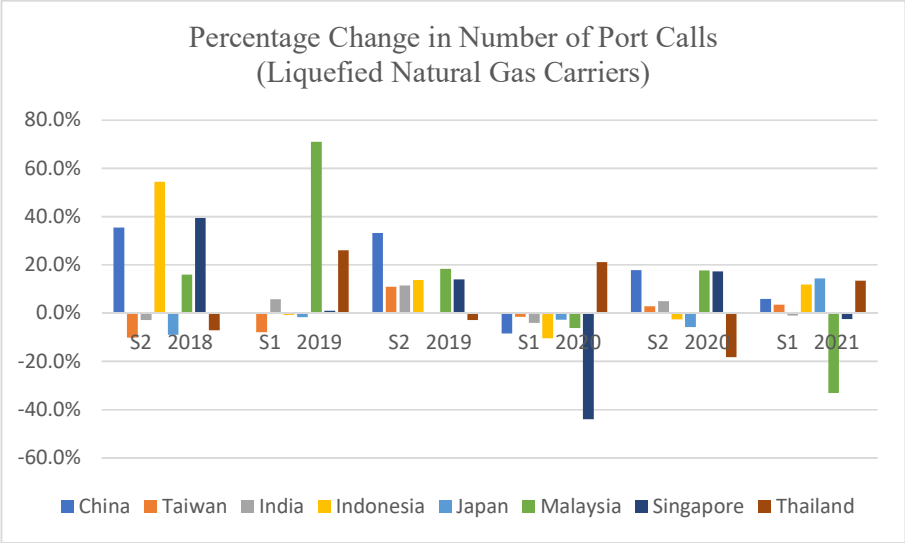

Figure 7: Percentage Change in Number of Port Calls (Liquefied Natural Gas Carriers)

From Figure 7, it is evident that the decline in the number of port calls for Liquefied Natural Gas Carriers is the highest for the economies of Singapore (43.9%) and the lowest for Taiwan (1.5%) during the Season 1 of 2020. Further, Thailand noted a positive incline of 21.1% during the Season 1 of 2020.

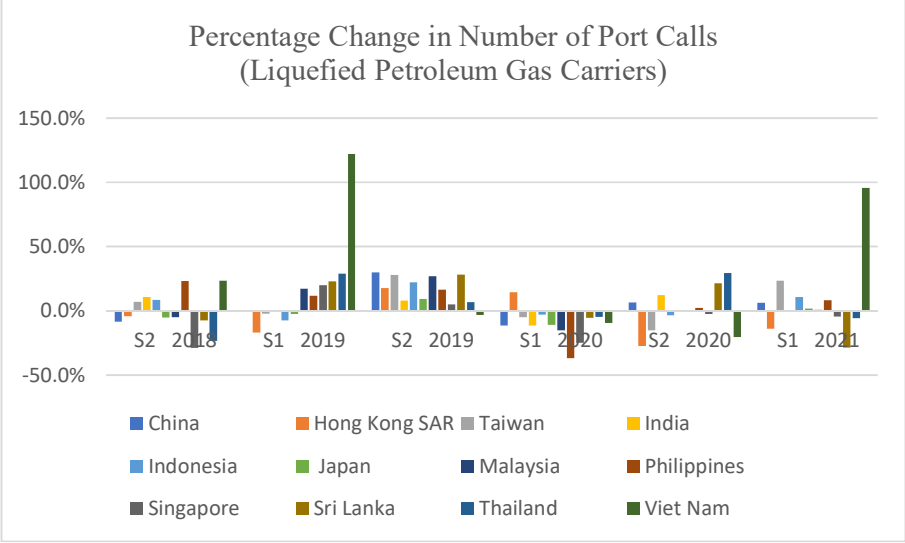

Figure 8: Percentage Change in Number of Port Calls (Liquefied Petroleum Gas Carriers)

It is apparent from Figure 8, that the decline in the number of port calls for Liquefied Natural Gas Carriers is the highest for the economies of the Philippines (36.8%) and Singapore (24.9%) and the lowest for Indonesia (2.9%) during the Season 1 of 2020. However, Hong Kong noted a positive incline of 14.4% during the Season 1 of 2020.

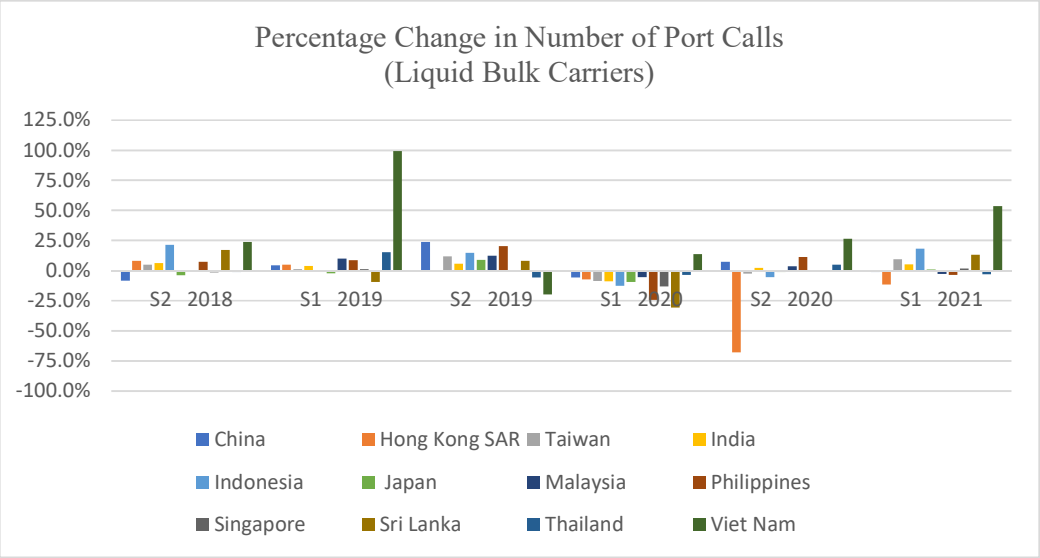

Figure 9: Percentage Change in Number of Port Calls (Liquid Bulk Carriers)

It is observed from Figure 9, that the decline in the number of port calls for Liquid Bulk Carriers is the highest for the economies of Sri Lanka (30.8%) and Philippines (24.3%) and the lowest for Thailand (3.6%) during the Season 1 of 2020. However, Viet Nam noted a positive increase of 13.7% during the Season 1 of 2020.

A shorter time in port is a positive indicator of a port's efficiency and trade competitiveness. Every hour of ship time saved in a port helps ports, carriers, and shippers save money on port infrastructure investments, capital expenditures on ships, and inventory holding costs of merchandise goods (UNCTAD, 2019). The median time spent in ports is given in Table 2.

Table 2: Median Time spent in Ports (All Ships) for the Twelve Asian Economies

Economy	S1 2018	S1 2018	S1 2019	S2 2019	S1 2020	S2 2020	S1 2021
China	1.01	1.04	1.05	1.03	1.06	1.10	1.13
Hong Kong	0.55	0.57	0.55	0.53	0.51	0.54	0.59
Taiwan	0.64	0.65	0.63	0.65	0.66	0.66	0.76
India	1.29	1.37	1.33	1.35	1.42	1.43	1.32
Indonesia	1.33	1.35	1.31	1.27	1.23	1.22	1.29
Japan	0.41	0.41	0.41	0.40	0.40	0.40	0.41
Malaysia	0.95	0.95	0.93	0.94	0.93	1.06	1.08
Philippines	1.01	1.07	1.01	0.95	0.95	1.02	1.00
Sri Lanka	0.96	0.98	0.98	0.90	0.92	1.21	1.14
Thailand	0.80	0.77	0.66	0.67	0.67	0.66	0.73
Viet Nam	1.17	1.42	1.34	1.26	1.17	1.13	1.09

Table 2 has shown that the economy of Japan has been consistent in maintaining the median time spent in port during the study period. The median time spent in ports has increased during the COVID 19 pandemic for India, China, and Sri Lanka. The median time spent in ports has decreased during the COVID 19 pandemic for Indonesia and Viet Nam.

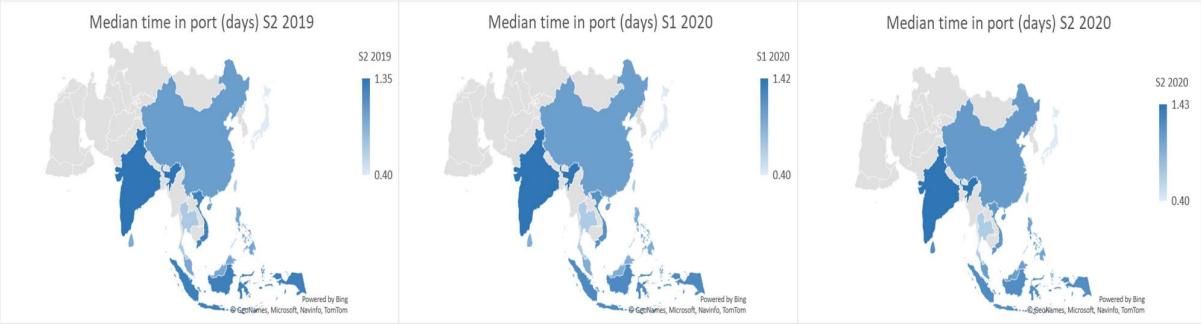

Figure 10: Median Time spent in Ports (days – All Ships) during the COVID 19 Pandemic

Figure 10 has portrayed that the range of median time spent in ports has increased during the COVID 19 pandemic period from 0.40 – 1.35 to 0.40 – 1.43. This indicates that the resilience of maritime transport was affected during the pandemic period.

Liner Shipping Connectivity Index reflects the connectivity to maritime shipping and measures the trade facilitation in the country (UNCTAD, 2019). A higher value of the index represents easier access to high capacity, frequency in the global maritime freight transport system, and effective participation in international trade. The descriptive statistics of the Liner Shipping Connectivity Index for the thirteen Asian countries for the period January 2018 to June 2021 are presented in Table 3.

Table 3: Results of Descriptive Statistics for Liner Shipping Connectivity Index

Economy	Mean	Median	Standard Deviation	Minimum	Maximum
China	158.30	157.45	5.94	150.05	170.34
Hong Kong	92.08	92.72	1.67	89.33	94.33
Taiwan	78.17	79.98	6.86	67.17	85.61
India	56.20	55.54	2.02	53.97	60.30
Indonesia	41.02	43.71	6.10	32.42	51.11
Japan	77.70	78.20	7.44	68.72	88.68
Malaysia	96.59	98.13	2.76	92.42	99.69
Philippines	29.75	30.51	2.40	25.08	32.88
Singapore	110.09	109.88	2.35	105.63	113.77
Sri Lanka	66.37	63.62	4.31	61.52	71.99
Thailand	53.77	51.73	7.43	44.47	64.50
Viet Nam	69.01	66.75	8.17	59.79	80.39

As noted in Table 3, China and Singapore have the higher values of the Liner Shipping Connectivity Index during the period January 2018 to June 2021.

The percentage change in the Liner Shipping Connectivity Index has been analyzed for the period January 2018 to September 2021 and presented in Figure 11.

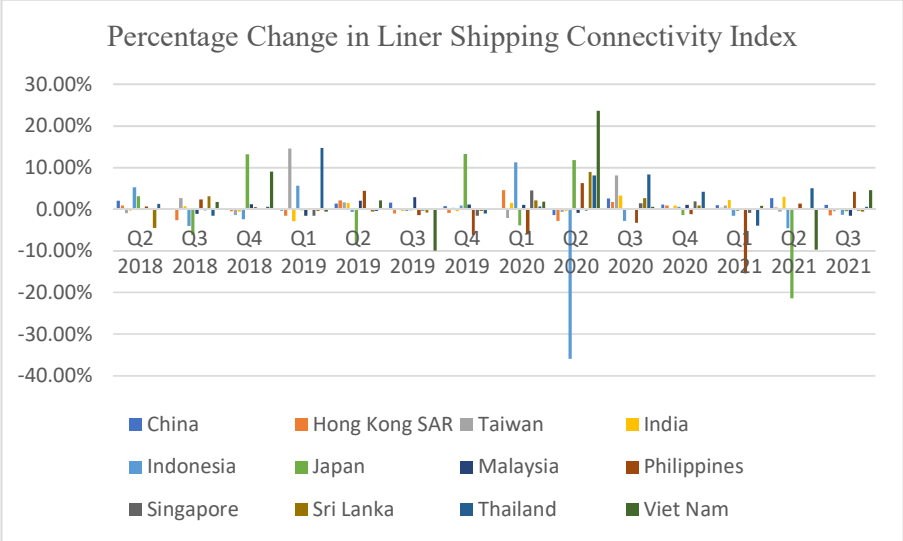

Figure 11: Percentage Change in Liner Shipping Connectivity Index

Figure 11 has depicted that the decline in the Liner Shipping Connectivity Index is the highest for Indonesia (35.93%) and the lowest for Singapore (0.40%) during Quarter 2 of 2020. However, Viet Nam and Japan noted a positive increase of 23.67% and 11.79% during Quarter 2 of 2020.

Conclusion

The paper examined the performance of the maritime transport during the COVID 19 pandemic for the twelve Asian economies. Number of Port Calls, Median time spent in ports and Liner Shipping Connectivity Index were the variables utilized in the study to measure the performance. The number of port calls, indicator of performance of ports had deeply declined for Philippines and Sri Lanka. The number of port calls by ship type had declined for Honk Kong for passenger ships, Thailand for Roll-on/ Roll-off Ships and Singapore for Dry Bulk Carriers. The median time spent in ports, indicator of efficiency of ports increased during the pandemic period. The median time spent in ports had increased for the economies of India and China. Liner Shipping Connectivity Index, indicator of connectivity to maritime shipping had decreased for Indonesia.

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