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The Effect and Statistical Analysis of the Pandemic in the Port and Coastal Facilities in the Bay of Mersin

Mersin Körfezindeki Liman ve Kıyı Tesislerinde Pandeminin Etkisi ve İstatistiksel Analizi

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Öz

2020 yılı başında başlayan pandeminin en büyük etkisi lojistik ve tedarik zincirleri üzerinde görülmüştür. Lojistik ve tedarik zincirinin en önemli düğüm noktalarından biri limanlardır. Bu çalışmada, Doğu Akdeniz bölgesinde bulunan Mersin Uluslararası Limanı ve diğer kıyı liman tesisleri 2013-2021 yılları arasındaki veriler kapsamında değerlendirilmiştir. Mersin limanı için regresyon analizi yöntemi kullanılarak pandemi dönemi olan 2020-2021 yılları için yük talep tahmini yapılmıştır. 2020-2021 yılları için yapılan yük talep tahminleri gerçekleşen rakamlarla karşılaştırılarak pandeminin etkisi değerlendirilmiştir. Regresyon analizinde limana gelen gemi sayısı (Vessel-V) bağımsız değişken, limanda yıllık elleçlenen konteyner miktarı (TEU–20 Feet'lik Konteyner) ve yıllık elleçlenen toplam yük miktarı (MT- Metrik Ton) bağımlı değişkenler olarak belirlenmiştir. 2020-2021 yılları için yapılan tahmin değerleri ile gerçekleşen veriler karşılaştırılarak pandeminin Mersin Uluslararası Limanı üzerindeki etkisi değerlendirilmiştir. Sonuç olarak, Mersin Körfezi'ndeki liman ve kıyı tesisleri V, MT ve TEU parametreleri üzerinden değerlendirildiğinde, pandemi sürecinin istatistiksel olarak anlamlı etkisinin olmadığını göstermiştir. Aksine, Mersin limanındaki yük hareketliliğinin arttığı, özellikle daha büyük gemilerin yanaşması ile limana gelen gemi sayısının düştüğü fakat gelen gemilerin tonajları arttığı için daha fazla konteyner (TEU) ve toplam yük elleçlendiği görülmüştür.

Anahtar Kelimeler: Pandemi, Mersin Limanı, Kıyı Liman Tesisleri, İstatiksel Analiz, Basit Doğrusal Regresyon Analizi.

ABSTRACT

The biggest impact of the pandemic, which started at the beginning of 2020, was seen on logistics and supply chains. Ports are one of the most important nodes of the logistics and supply chain. In this study, Mersin International Port and other coastal port facilities which are in the East-Mediterranean were evaluated on a scope of data between 2013 and 2021. By using the regression analysis method for Mersin port, freight demand forecasts were made for the pandemic period 2020-2021. The impact of the pandemic was evaluated by comparing the freight demand forecasts made for the years 2020-2021 with the actual figures. In the regression analysis, the number of ships arriving at the port (V) was determined as the independent variable, the annual container (TEU - Twenty Equivalent Container Unit) handled at the port and the annual total cargo handled (MT – Metric Tonnes) were determined as the dependent variables. The impact of the pandemic on Mersin International Port was evaluated by comparing the estimated values for the years 2020-2021 with the actual data. As a result, when the port and coastal facilities in Mersin Bay were evaluated over V, MT and TEU parameters, it showed that the pandemic process did not have a statistically significant effect. On the contrary, it has been observed that the freight mobility in Mersin port has increased, the

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number of ships arriving at the port has decreased especially with the berthing of larger ships, but more TEU and total cargo have been handled as the tonnage of the incoming ships has increased.

Keywords: Pandemic, Mersin Port, Coastal Facilities, Statistical Analysis, Basic Lineer Regression Analysis.

INTRODUCTION:

Ports and coastal facilities are in the center of the money flow and growth of the countries since the beginning of the international trade. Investments on the ports and infrastructure means reduction of transportation and production cost while increasing accessibility (Mudronja et al., 2020). In addition, government supports of private investment have the effect of improving trade and increasing productivity on labors and create new employment and education areas (Bottasso et al., 2013; Ferrari et al., 2010). Trade routes and cooperation of the countries affect the intercourses and caused the globalization of the system. Transportation and handling speeds of cargoes have become the crucial factor for both revenues and customer satisfaction. Furthermore, requisition of speed and increasing transshipment cargoes have started to cause congestions on both areas of ports and coastal facilities. Although the restrictions due to pandemic and trade contraction about %6 on seaborne trade growth, maritime transport are predicted to continue an unchangeable role for world transport and trade in the next years (UNCTAD, 2020). Therefore, developed and developing countries were kept on investing especially to transportation and infrastructure for their seaborne areas and focus to connect on globalized world trade web to have proper position of consumption and production line. In that perspective, Turkey which has the developing country status also have accelerated the investments for infrastructure especially on the ports at last two decades (Esmer and Duru, 2017) to increase especially the export capacity and get the role of the global projects and the other development projection. In addition, ports and coastal facilities need more speed, area, connections, and intergovernmental support to get success in struggle and overcoming restrictions in the pandemic situations. Boundaries of regional trade blocks are changing, and connections are increasing (Ruan et al., 2019; Lee et al., 2015) so that combining connections such as using dry-ports, railways and inland waterways would be great importance in the trade future of countries (Nguyen and Notteboom, 2019; Roso et al., 2009). Structural (dredging, land reclaim, additional cranes and connections) and non-structural (private funding of investments, improvement on berth, yard, dock, gate capacity and price adjustment) methods are being used for enhancement and capacity growth in Turkish Ports (Dekker, 2005). Furthermore, coastal facilities especially using float systems for the cargo operations are in purpose of operating more than one ship and more cargo in the same limited time.

In this study, Mersin International Port and other coastal facilities which are in the East-Mediterranean were evaluated on a scope of data between 2013 and 2021. In Mersin international port, cargo handling estimates for the pandemic period 2020-2021 were made using the linear regression analysis method, based on the cargo handling data between 2013-2019, and the estimates made to measure the effect of the pandemic were compared with the actual data. Also, the cargo handling data of the Mersin free zone port and 9 coastal facilities between 2013-2021 and to determine the impact of the pandemic were examined.

1. Effects of the Pandemic on the Maritime Industry

The Covid-19 virus, which emerged in Wuhan, China, has spread rapidly to many countries of the world since December 2019. With its decision dated March 11, 2020, the World Health Organization described the epidemic as a "pandemic", raised the global risk level to "very high" and declared it an "International Public Health Emergency". The Covid-19 pandemic has had a significant impact on both shipping and the global economy. With its critical role in ensuring the continuity of global trade and supply during the pandemic process, maritime transport has come to the fore even more. This

has been demonstrated by the recommendations of many international organizations around the world to protect port workers and seafarers, and to keep ports open for ships and related operations. In 2019, a year in which the growth momentum in global trade slowed down, and in the following 2020, severe pressure on international shipping continued (UNCTAD, 2020).

In order to fulfill the low demand levels caused by the epidemic and accompanying restrictions in 2020, global container operators closely monitored their ship supply capacities and made some adjustments to adapt to the process. Strategies for capacity management and cost reduction have been implemented, such as the suspension of some services, the interruption of scheduled voyages, and the rerouting of ships. Despite the pandemic, 2020 was a year in which positive performance was observed in freight rates. Along with these developments, the growth of ships and the increase in their capacities in container transportation create an ongoing concern for the sector. The carriers, not the ports, benefit from the economies of scale due to the growing ships, and as the ship size increases, the time spent by the ships in the port per container decreases. This situation creates a great pressure on the ports (Oğuz, 2021).

When we look at the studies on the effect of the pandemic, there are some studies aimed at estimating and evaluating the impact of the pandemic for the solution especially of the restrictions and restrictive policies of the governments. Moreover, in studies on the impact of the pandemic on the maritime sector, ports were generally discussed. İncaz and Karaköprü discussed the impact of the Covid-19 pandemic on container handling of the port of ambarlı in their studies and performed a forecasting analysis for the future. In their study, where they used the single exponential smoothing method as the analysis method, it was determined that there would be no significant increase or decrease in container handling in the next five years (İncaz & Karaköprü, 2021). Xu et al. (2021) determined that European Union, North America, and Southeast Asia shipping trade were affected negatively in a short term but in the long run economic development and order restored. According to Menhat et al. (2021) the pandemic impact assessment on the maritime sectors classified as maritime, fishing, maritime tourism and the oil and gas sector showed that maritime was found less affected. Furthermore, economic aspects in literature showed that pandemic had more impact on less developed and high populated countries (McKibbin and Fernando, 2021). In this respect, the evaluation of Turkey's maritime trade in pandemic conditions have to be thought to be the first target on the way for solution in the regional and national area.

2. Port and Coastal Facilities in Mersin Bay

2.1. Mersin International Port (MIP) and Mersin Free Zone Port (MFZP)

MIP and MFZP are nearly intertwined, and a path named as corridor makes the controlled connection when it is necessary between them (Figure 1). Although the rules and regulations which they are depended on have some differences, both serve for national and international cargo handling. Table 1 shows the qualifications of the two ports.

Table 1. Capacity, Dock Numbers, Max Depth and Total Dock Length

Ports	Capacity/Year ©	Docks Number	Total Dock Length	Max Depth	Total Port Area
MIP	2.600.000 TEU, 8.850.000 (Bulk, MT) 1.000.000 (General, MT)	21	3370 (m)	15,8 (m)	4,2 m^2 (Million)
MFZP	1.500.000 (Bulk, MT)	3	500 (m)	9,8 (m)	38.532 m^2

Figure 1. MIP and Mersin Free Zone Port
Source: (Google Earth, 2021)

Mersin International Port (MIP)

The operating right of international port, which had been operated by Turkish Republic State Railways (TCDD) until 11 May 2007 was assigned for 36 years, the operation rights were awarded to the PSA-AKFEN Joint Venture Group, after placing the highest bid of US$ 755 million in the tender held by the Privatization Administration. In October 2017, Akfen Holding's 40% stake sale, IFM Investor also became one of the shareholders of the International Port (MIP, AKFEN, 2021). The first phase of the East Med Hub dock improvement project was completed in 2016 and nowadays second phase investment about US$ 380 million are in process of starting. After first phase was finished, it was gained about 600.000 TEU/year for MIP and the new dock get convenient for up to 366 meters mega container ships. (Figure 2) After second phase, MIP is projected to gain more 900.000 TEU/year with reaching 3.500.000 TEU/Year and berth one more mega container ships at the same time.

Figure 2. Length of MIP Docks

Source: (MIP, 2021)

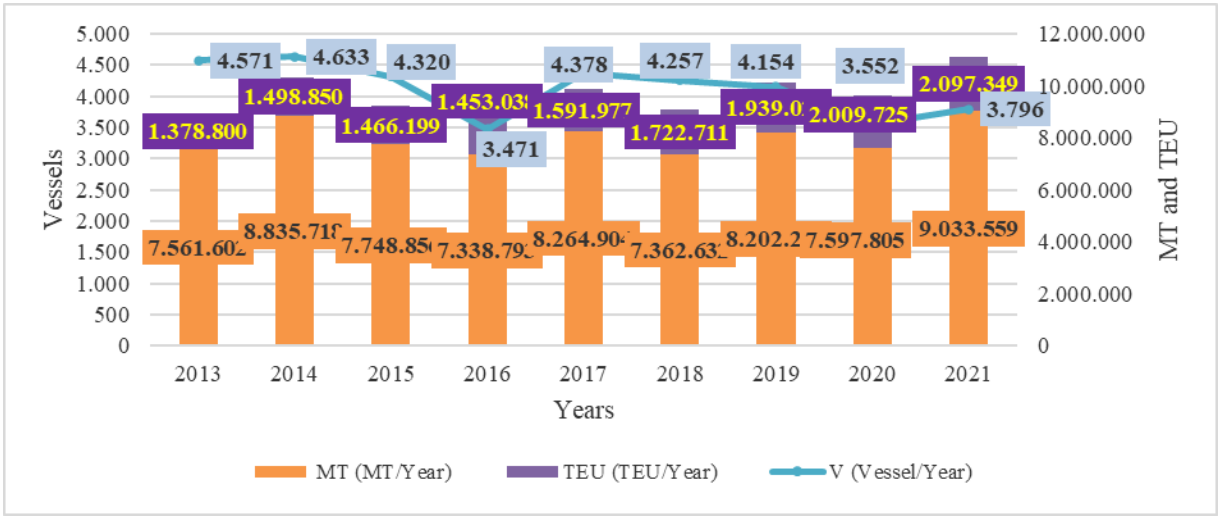

Figure 3. Mersin International Port Statistics Between 2013-2021

Source: Prepared with Mersin Chamber of Shipping and Ministry of Transportation and Infrastructure Statistics, 2022.

When we examine the cargo traffic in Mersin port between 2013 and 2021 in Table 2, it is observed that there is a continuous increase in terms of TEU and total cargo amount (MT) handled. In 2021, 2,056,387 TEU containers and 38,124,085 tons of total cargo were handled. As for the number of incoming ships, the number of 5076 ships arriving in 2013 could not be exceeded for 9 years, and in general, a decrease was observed in the number of ships until 2021.

Table 2. Port Ship Traffic, Container and Total Cargo Handling Statistics in Mersin International Port Between 2013-2021

Years	Number of Incoming Ships	Handled Container (TEU)	Total Cargo Amount Handled (MT)
2013	5.076	1.350.497	29.360.836
2014	4.561	1.470.798	31.328.827
2015	4.242	1.423.231	30.865.898
2016	4.161	1.393.441	30.287.689
2017	4.349	1.521.365	32.756.226
2018	4.313	1.669.603	33.091.425
2019	3.874	1.898.625	35.326.405
2020	3.552	1.985.985	37.022.758
2021	3.796	2.056.387	38.124.085

Source: Prepared with Mersin Chamber of Shipping and Ministry of Transportation and Infrastructure statistics, 2022.

Mersin Free-Zone Port (MFZP)

Free trade zone is the area within which cargoes may be landed, handled, manufactured, or reconfigured, and re-exported without the intervention of the customs authorities. Mersin Free-Zone Port works on especially for handling raw materials for supply chain management opportunities in industrial areas to create opportunity to benefit from tax advantages for manufacturing services. The revenue and earnings from free zone ports could be transferred without any charge to Turkey or abroad without any permission. Therefore, Free-Zone Port has different aspect and regulations on working and service for cargo handling.

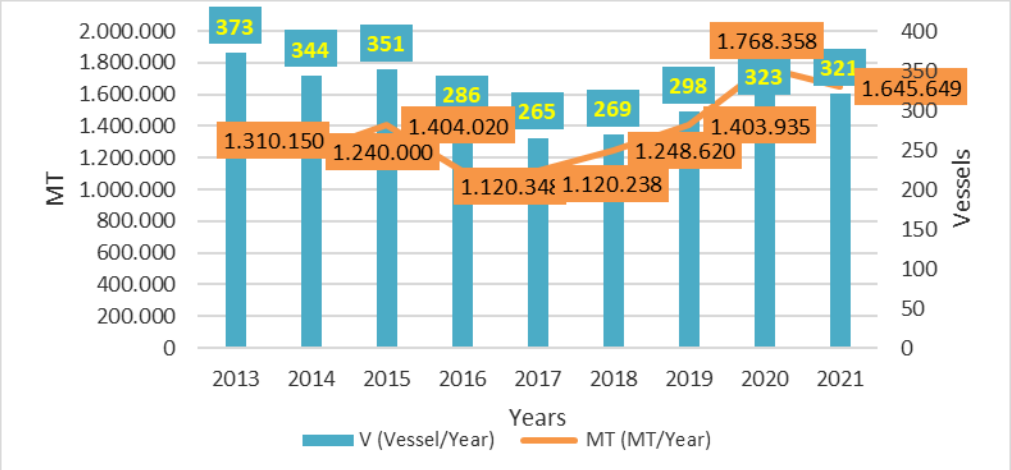

Figure 4. Mersin Free-Zone Port Statistics Between 2013-2021

Source: Prepared with Mersin Chamber of Shipping and Ministry of Transportation and Infrastructure Statistics, 2022.

2.2. Coastal Facilities in Mersin Bay

There are 9 coastal facilities which work on petroleum and liquid bulk products in Mersin Bay. Eight Coastal Facilities (CF) and one Platform System Coastal Facility (PF) facilities are established in the sea-based area and connected via underwater pipelines to land side of the facilities except two CF which use terminal for operations. The ports and coastal facilities data were classified as Capacity/Year (C), Number of Vessels/Year (V). Capacity was measured as metric ton (MT) for coastal facilities and platform which were handling only liquid bulk. Coastal facilities were named as (CF1, CF2, ..., CF8) and platform system coastal facility was named (PF) in the paper. In addition, TEU (Twenty-foot Equivalent Unit) and metric ton (MT) were also used for Mersin International Port (MIP) and Free-Zone Port (MFZP) for handling capacity evaluation.

Only two facilities have a capacity to handle over 1 million MT in a year, and there have not been any linear correlation factor each other of all facilities. The PF have advantages on operation of more than one ship and so more cargo handling, but the most important disadvantage is berthing and maneuvering accidents in bad weather conditions. In addition, some coastal facilities aim to establish an LPG-LNG terminal and platform, their plans have been approved and the landside installation is currently in progress.

Table 3: Capacity of Coastal Facilities in Mersin Bay

	Facilities	**Capacity** (Ton, m3, TEU)	**Activity Scope**
1	**OPET**	240.000 m3	Petroleum and Derivatives
2	**ATAŞ**	570.800 m^3	Petroleum and Derivatives
3	**NERGİS**	157.244 m^3	Petroleum and Derivatives
4	**POAŞ**	109.856 m^3	Petroleum and Derivatives
5	**CANASLAN**	65.000 m^3	Petroleum and Derivatives
6	**ENERJİ**	40.600 m^3	Petroleum and Derivatives
7	**ALPET**	96.000 m^3	Petroleum and Derivatives
8	**SAVKA**	365.000 m^3	Oil, Petroleum and Derivatives
9	**AKPET**	27.084 m^3	Petroleum and Derivatives

Source: Prepared with Mersin Chamber of Shipping and Ministry of Transportation and Infrastructure statistics, 2022.

The figures below show the parameters of the nine facilities between the dates from 2013 to 2021 (Figure 5-13).

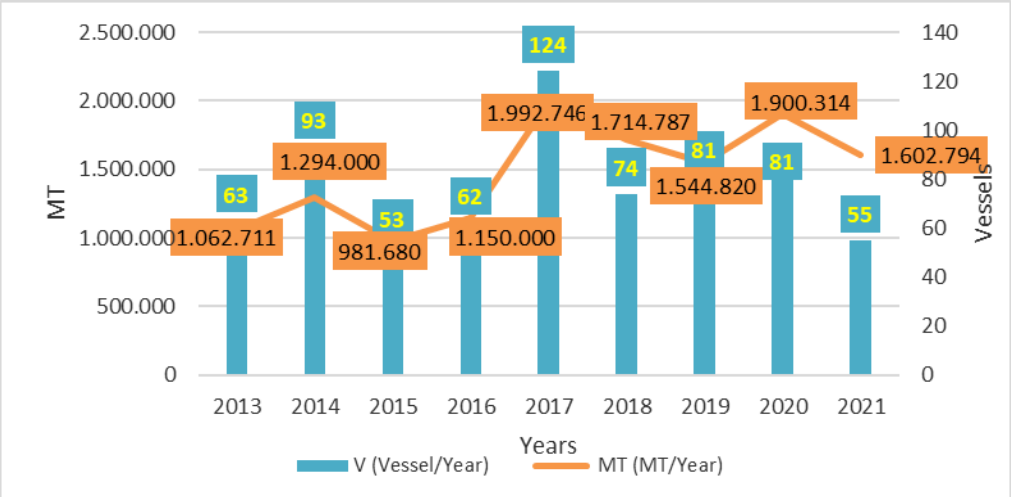

Figure 5. OPET - Coastal Facility-1 Statistics Between 2013-2021

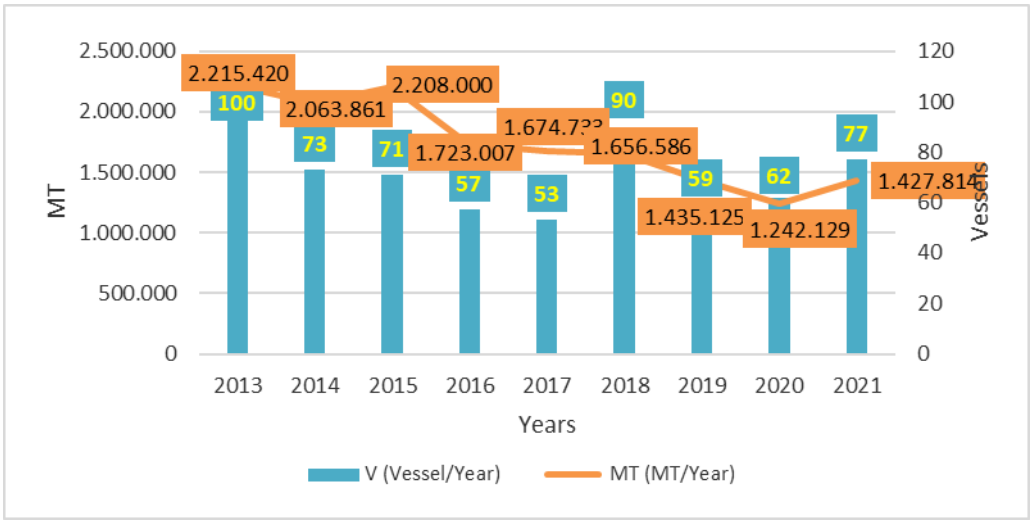

Figure 6. ATAŞ - Coastal Facility-2 Statistics Between 2013-2021

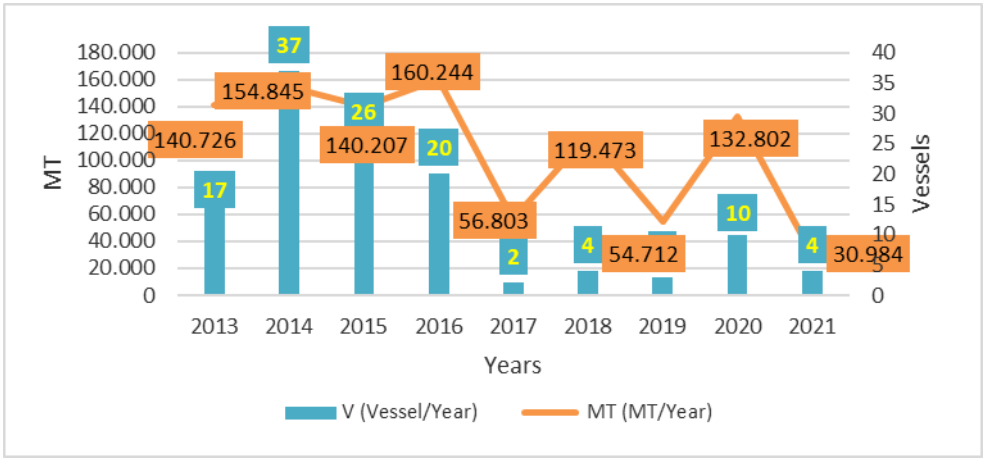

Figure 7. ALPET - Coastal Facility-3 Statistics Between 2013-2021

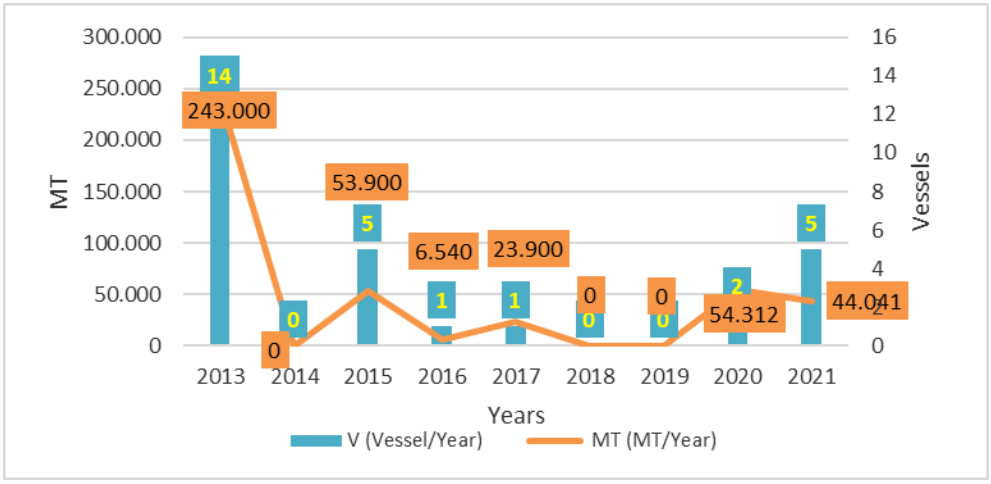

Figure 8. CANASLAN - Coastal Facility-4 Statistics Between 2013-2021

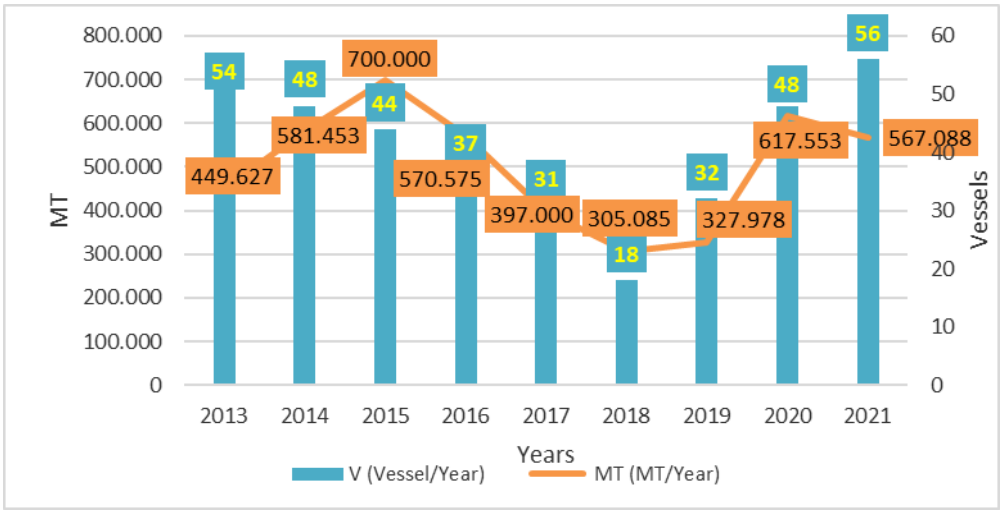

Figure 9. POAŞ - Coastal Facility-5 Statistics Between 2013-2021

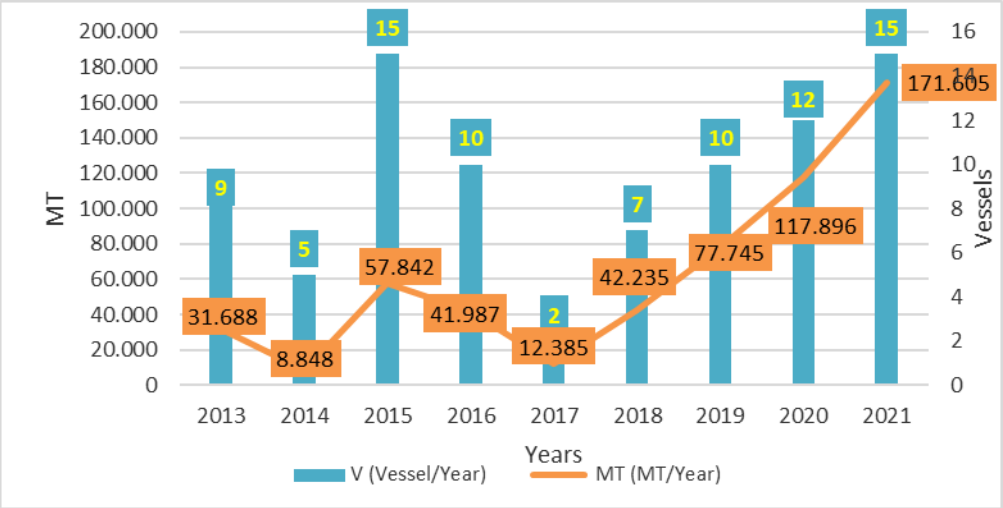

Figure 10. ENERJİ - Coastal Facility-6 Statistics Between 2013-2021

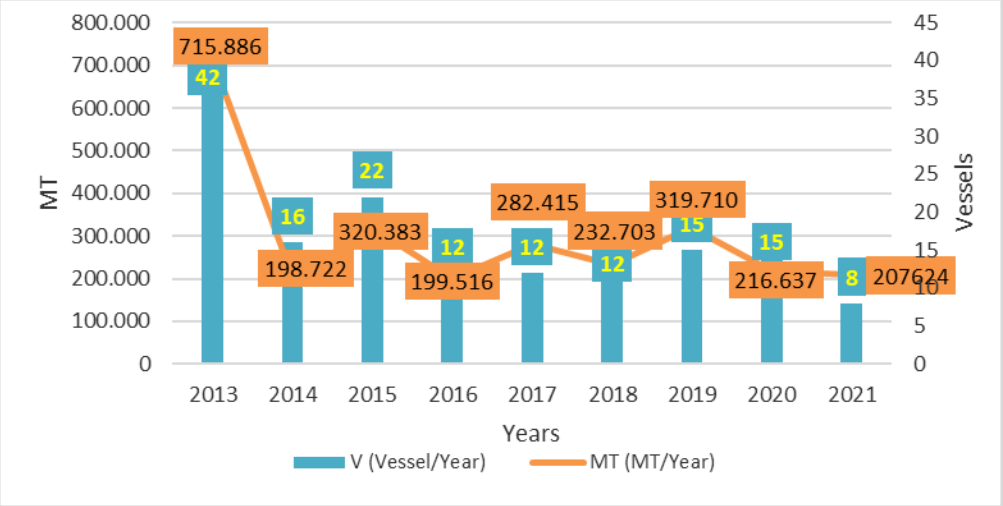

Figure 11. NERGİS - Coastal Facility-7 Statistics Between 2013-2021

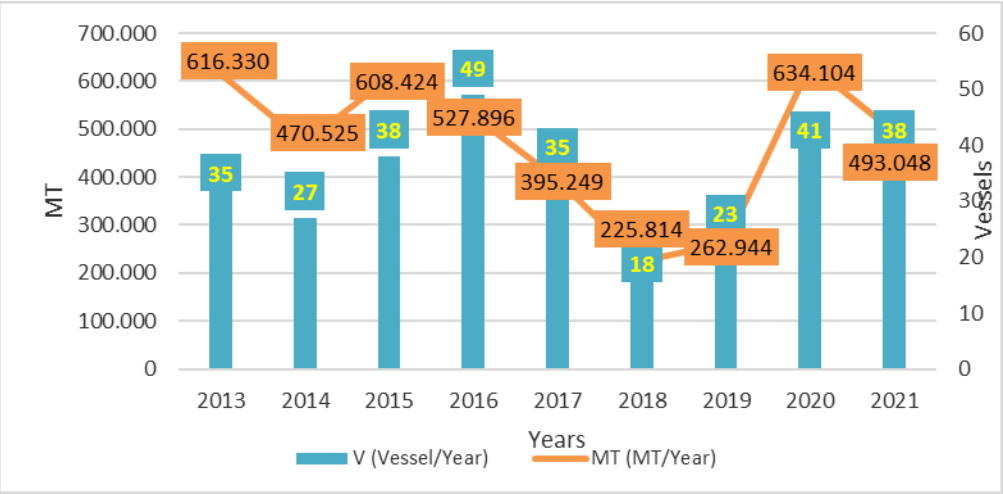

Figure 12. SAVKA Coastal Facility-8 Statistics Between 2013-2021

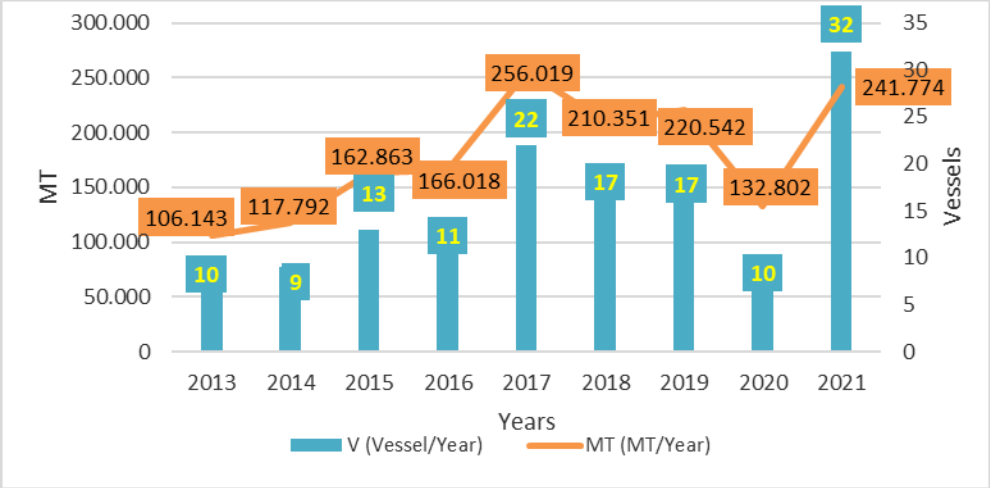

Figure 13. AKPET - Coastal Facility-9 Statistics Between 2013-2021

MATERIAL AND METHOD

3. Mersin Port Cargo Handling Forecast for the Years 2020-2021 and Evaluation of the Impact of the Pandemic

3.1. Methodology: Simple Linear Regression Analysis

In this study, based on the handling data of Mersin International Port between 2013-2019, a regression analysis for the pandemic period 2020-2021 was used to estimate the cargo handling. Estimation data for the years 2020-2021 were compared with the amount of handling carried out in the same years, and it was determined how much Mersin International port was affected in the pandemic. In addition, the 2013-2021 cargo statistics of other coastal facilities, especially the free zone port in the Mersin Bay were also examined, and evaluations were made about the impact of the pandemic on these coastal facilities.

In our study, simple linear regression analysis method was used in the analysis of statistics and estimation for the years 2020-2021. Regression analysis is one of the main methods that reveals the mathematical relationships between two or more variables that have a cause-effect relationship between them. Regression analysis is based on the assumption that one variable is explained by other variables. Variables that have a cause-effect relationship between them are modeled mathematically and this model is called a regression model (Kirkwood, 2003; Pagano, 1993). The regression model can be expressed as:

$$Yi = \beta 0 + \beta 1\ Xi + ui \quad i = 1, 2, 3, \ldots, n \tag{1}$$

Y denotes the dependent variable and X denotes the independent variable in the model. When the value of one of the variables is known, the value of the other variable is found. The value shown as "u" in the model, the point where the line cuts the Y-axis, is a fixed error measure in the analytical method. It shows the difference between the expected Y value and the actual Y value. β0 represents the constant coefficient and β1 represents the coefficient showing the direction and magnitude of the relationship between Y and X variables. The regression coefficient (slope), which is the value indicated by "β1", is a measure of proportional error in the analytical method. It shows the average

amount of change that will occur in the dependent variable when there is a one-unit change in the independent variable.

If the number of independent variables in the regression model is one, the model is called simple linear regression, and if the number of independent variables is more than one, it is called multiple linear regression. If the "p" value found for the model is <0.05, the regression coefficient is different from 0, that is, there is a linear relationship between the two variables. On the other hand, the fitness indicator of the model is expressed with R2, and the closer the R2 value is to 1, the better the model (Yıldız, 2020).

In the regression analysis, the number of ships arriving at Mersin port (V) was considered as the independent variable, and the container handled (TEU) and the total amount of cargo (MT) were considered as the dependent variable. The reason for choosing the number of ships as an independent variable is; the main factor is that the number of incoming ships is the main factor in the emergence of the cargo handled at the ports and there is a correlation of over 66% between the number of ships and the dependent variables. In our study, a simple linear regression analysis was performed and load estimation was made for the dependent variables of TEU and MT for the years 2020 and 2021. The dependent and independent variables used in the model are given in Table 4 below.

Table 4: Dependent and Independent Variables in Regression Model

Mersin Port	**Independent Variable**	**Dependent Variables**	
Years	**Number of Incoming Ships (V)**	**Handled Container (TEU)**	**Total Cargo Amount Handled (MT)**
2013	5.076	1.350.497	29.360.836
2014	4.561	1.470.798	31.328.827
2015	4.242	1.423.231	30.865.898
2016	4.161	1.393.441	30.287.689
2017	4.349	1.521.365	32.756.226
2018	4.313	1.669.603	33.091.425
2019	3.874	1.898.625	35.326.405
2020	3.552	Years for which cargo handling will be estimated	
2021	3.796	Years for which cargo handling will be estimated	

The formulas used in the simple linear regression analysis are as follows:

Model 1: Mersin port container handling forecasting TEU (Y1) = B0+B1*X (2)

X: Number of incoming ships

Model 2: Mersin port total cargo handling amount forecasting MT(Y2) = B0+B1*X (3)

X: Number of incoming ships

RESEARCH FINDINGS:

The regression model 1 found for formula; Y1=3013615–339*X, regression model 2 found for formula; Y2=48502757–3810*X. As a result of the simple regression analysis with 9 observation values, the R square value for formula 1 was found to be 0.44, and the R square value for formula 2 was 0.51. In both formulas, the intersection coefficients (B0) were positive, and the regression coefficients (B1) were negative. Regression analysis and graphics were created using Microsoft Excel program. The results obtained as a result of the regression analysis are presented in Table 5 and Table 8.

Table 5: Estimated and Actual Container Handling Amount for Mersin International Port

Mersin Port	Number of incoming ships	Estimated Container Handling Quantity (TEU)	Actual Container Handling Quantity (TEU)	R^2 Value
2020	3.552	1.809.199	1.985.985	0.44
2021	3.796	1.726.463	2.056.387	

Table 6: Coefficients for Model 1

Model 1	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sigma
Constant (TEU)	3.013.615	177.755		16,953	.000
Number of Vessel	339	347,36	0,328	0,975	.000

Table 7: Estimated and Realized Total Cargo Handling Amount for Mersin International Port

Mersin Port	Number of incoming ships	Estimated Total Cargo Handling Amount (MT)	Actual Total Cargo Handling Amount (MT)	R^2 Value
2020	3.552	34.968.774	37.022.758	0.51
2021	3.796	34.039.074	38.124.085	

Table 8: Coefficients for Model 2

Model 2	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sigma
Constant (Total Cargo Handling)	48.502.757	1.864.095		26,019	.000
Number of Vessel	339	347,36	0,412	0,975	.000

According to the estimation of containers handled as a result of the regression analysis, it was estimated as 1,809,199 TEU for 2020 and 1,726.463 TEU for 2021. The amounts realized for the same years are; It was realized as 1,985,985 TEU for 2020 and 2,056,387 TEU for 2021. The amount of containers handled in Mersin port in the years 2020-2021 is higher than the amount of containers estimated by regression analysis. Moreover, the number of containers handled is the highest ever handled. Therefore, it is understood from here that the pandemic that has occurred since the beginning of 2020 has not had a negative effect on the container traffic of Mersin port.

As for the total amount of cargo handling, it has been estimated that 34,968,774 tons of cargo will be handled in Mersin port for 2020, and 34,039,074 tons for 2021, with regression analysis. The volumes realized in Mersin port were 37.022.758 tons for 2020 and 38.124.085 tons for 2021. In terms of the total amount of cargo handled, it is seen that Mersin port handles more cargo than predicted by the regression analysis. Again, it was observed that the pandemic effect did not have a negative impact on Mersin port in terms of total cargo handling amount (Ton). On the contrary, it has been observed that the cargo handling amount of Mersin port has increased continuously in terms of both TEU and total cargo. Another point that draws attention with these increases is the constantly decreasing number of ships. While 5076 ships came to Mersin port in 2013, this number decreased to 3796 in 2021.

When we evaluate the Mersin Free Zone port and other coastal facilities; In the Mersin free zone port, where bulk and general cargo cargoes are handled, an increasing cargo handling graph has been observed in recent years. When the other coastal facilities are examined, it is seen that there is an increasing cargo handling graph in all coastal facilities except 4 (OPET, ALPET, POAŞ, SAVKA). Therefore, no pandemic effect was observed in these facilities in general.

CONCLUSION:

Mersin port is one of the biggest and most important ports of Turkey in terms of many criteria. It is a constantly growing and developing port due to the fact that it is our country's gateway to the Middle East, its strategic importance in the eastern Mediterranean and its ever-increasing cargo potential. In this study, Mersin International Port and coastal facilities in Mersin Bay were evaluated both under pandemic conditions between 2020-2021 and with parameters in the total time interval of 2013-2021. As a result of our study, it was determined that the maritime cargo statistics of Mersin ports and coastal facilities during the pandemic had a similar structure to the global study results on same field.

Despite the decrease in the number of ships arriving at Mersin International Port, there is a continuous increase in the amount of TEU and total cargo handled. Despite the decrease in the number of incoming ships, the reason for the increase in handling in TEU and total cargo amount can be explained as the increase in the tonnage of the incoming ships. Therefore, it can be said that larger ships carrying more cargo and containers come to Mersin port every year. MFZP where hundreds of ships dock every year had a complete increase trend on both MT and V parameters in pandemic situations. In the light of these results, MFZP was found as an important port with a high development factor due to work on field of manufacturing and raw materials. Therefore, both port facilities were found unaffected on values or cargo handling capacities between 2019-2020, and parameters had also showed that MIP and MFZP had grown up statistics on TEU and MT, respectively between 2013-2021. It has been observed that there is a general increasing trend in other coastal facilities between 2013 and 2021. Furthermore, PF and most of the CF which depend on supply and demand conditions in petroleum and liquid bulk products in sale areas had increasing trend in pandemic.

In conclusion, the parameters and analysis showed that the pandemic conditions did not have a statistically obvious negative effect on the MT and TEU parameters of the ports and coastal facilities in Mersin Bay. These results showed a possible ascending potential of MIP and need grow plan both port and backyard of the operation areas. If any possible intermodal transportation ways established, MIP could be the transshipment point of Asia-Europe for containerized cargoes.

This study covers only the port facilities in Mersin Bay and especially the container and total cargo handling in Mersin International port. Mersin region is home to a specific free zone port and Turkey's largest container port within its borders. So the study was carried out using regional statistics and it was thought that it would be a reference to see the national impact of the pandemic. Similar studies can be carried out in other important ports of Turkey. Conducting interdisciplinary research with other maritime related fields like fisheries, oil, tourism, transportation and measuring the impact of Covid-19 on the maritime trade environment will also be useful for future studies.

Compliance with Ethical Standart

Conflict of interests: The authors declare that for this article they have no actual, potential or perceived conflict of interests.

Ethics Committee Approval: Ethics committee approval is not required for this study.

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