INVESTIGATING THE EFFECT OF SERVICE QUALITY ON CUSTOMER SATISFACTION: THE CASE OF MERSIN INTERNATIONAL PORT

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Abstract

Port operations play a crucial role in fostering social and economic progress. The effectiveness and reliability of port services wield considerable influence over customer preferences. Nonetheless, additional scholarly exploration is warranted to grasp the correlation between port service quality and customer contentment. With this objective in mind, this research endeavors to scrutinize the influence of service quality at Mersin Port on customer satisfaction. A survey encompassing 215 Mersin Port users was administered as part of the study. In the study, the ROPMIS model served as the tool to evaluate port service quality. This framework comprises resources, outcomes, processes, management, reputation, and social accountability. The amassed data underwent scrutiny via the statistical tool Smart-PLS 4.1.0. The findings divulge that reputation, social accountability, and management notably impact customer satisfaction with port service quality. This study reveals the impact of port service quality on customer satisfaction, aiding port management in quality improvement.

Keywords: *Mersin Port, Port service quality, ROPMIS model.*

HİZMET KALİTESİNİN MÜŞTERİ MEMNUNİYETİ ÜZERİNDEKİ ETKİSİNİN ARAŞTIRILMASI: MERSİN LİMANI ÖRNEĞİ

Öz

Liman operasyonları, sosyal ve ekonomik ilerlemenin desteklenmesinde çok önemli bir rol oynamaktadır. Liman hizmetlerinin etkinliği ve güvenilirliği, müşteri tercihleri üzerinde önemli bir etkiye sahiptir. Bununla birlikte, liman hizmet kalitesi ile müşteri memnuniyeti arasındaki ilişkiyi kavramak için daha fazla bilimsel araştırmaya ihtiyaç duyulmaktadır. Bu amaçla, bu araştırma Mersin Limanı'ndaki hizmet kalitesinin müşteri memnuniyeti üzerindeki etkisini incelemeye çalışmaktadır. Çalışma kapsamında 215 Mersin Limanı kullanıcısını kapsayan bir anket uygulanmıştır. Çalışmada, ROPMIS modelini liman hizmet kalitesini değerlendirmek için bir araç olarak kullanılmıştır. Bu çerçeve; kaynaklar, sonuçlar, süreçler, yönetim, itibar ve sosyal hesap verebilirliği içermektedir. Toplanan veriler Smart-PLS 4.1.0 istatistiksel aracı kullanılarak incelenmiştir. Bulgular itibar, sosyal hesap verebilirlik ve yönetimin liman hizmet kalitesine ilişkin müşteri memnuniyetini önemli ölçüde etkilediğini ortaya koymaktadır. Bu çalışma, liman hizmet kalitesinin müşteri memnuniyeti üzerindeki etkisini ortaya koymakta ve liman yönetimine kalite iyileştirme konusunda yardımcı olmaktadır.

Anahtar kelimeler: *Mersin Limanı, Liman hizmet kalitesi, ROPMIS modeli.*

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INTRODUCTION

Seaports have a long history since the early days of humanity. With the birth of civilizations worldwide, ports have become essential hubs supporting trade networks. Although port transport technology has advanced dramatically, the role and function of ports have remained similar. Traditionally, a port is defined as a transit point through which people and goods move from sea to land and from land to sea. Ports are important places that link land and sea and are the meeting points for different modes of transport. Since sea and land transport modes have different capacities, ports function as cargo transfer points where cargo is brought together or separated (Nottebom et al., 2022). In other words, ports are spatial and functional nodes where port activities are concentrated.

Ports, the ports of call for ships, provide loading and unloading services. Within the scope of these services, cargoes are stacked and stored, and integrated logistics solutions are provided (Esmer, 2019). Considering that 90% of international trade is carried out through port transport (OECD, 2011), it can be said that ports are key points of international trade (Sanrı, 2021). In this context, it can be considered that efficiently operating ports provide a competitive advantage in international trade.

In today's competitive environment, providing quality services to port users is key to sustaining and succeeding in port operations (Ugboma & Owude, 2004). Therefore, service quality is an extremely important factor for ports. In their service quality research, Parasuraman and other researchers emphasized that excellent service is a profitable strategy. This strategy means attracting new customers, providing more business to existing customers, and making fewer mistakes in in-service performance (Parasuraman et al., 1985).

The sustainability of ports depends on increasing users' satisfaction by providing quality services per their expectations and demands. For this reason, it is very important to conduct research to improve port service quality and determine port users' expectations and demands. In addition, it is also of great importance to determine how port users perceive the services offered. This study aims to investigate the effect of service quality offered at Mersin Port on the satisfaction of port customers. This study is significant as it is the first to measure the service quality of Mersin Port using the ROPMIS scale in national literature. This original research aims to contribute to port management by helping them develop strategies to improve service quality and enhance customer satisfaction.

1. CONCEPTUAL FRAMEWORK

This section examines the conceptual framework of service quality, port service quality, and customer satisfaction based on the literature. Additionally, a literature review has been conducted on these topics. It has been determined that researchers apply service quality to different factors across various sectors. Different authors have also investigated the relationship between service quality and customer satisfaction. Some of these studies are mentioned below.

1.1 Service Quality and Port Service Quality

The term "service" refers to the act/process performed by one party for the benefit of the other. This act or practice usually does not produce a tangible object and does not result in the transfer of ownership (Lovelock & Wright, 2002). According to Kotler, services are economic activities that provide benefits and advantages to customers at a specific place and time. In other words, a service is offered to meet customer needs, solve problems or provide experiences.

Service quality is measured by comparing customer expectations with service performance (Teas, 1993). In other words, service quality is determined by evaluating the difference between what the customer expects from a service and the actual service experience. Companies should regularly measure, evaluate and improve their services to better meet customer expectations and improve service quality. By doing so, companies can increase customer satisfaction and loyalty, gain competitive advantage and achieve long-term success.

Researchers have proposed many models to measure service quality. One of these models is the SERVQUAL model, which was proposed by Parasuraman, Zeithaml, and Berry (1988). This model consists of 5 factors; physical facilities, reliability, responsiveness, assurance, and empathy. This model is widely used. However, Cronin and Taylor (1992) argued that SERVQUAL needs to be clarified with service satisfaction. Therefore, they proposed another model called SERVPERF, which is based only on performance by omitting the expectation factor of the SERVQUAL scale (Cronin & Taylor, 1992). Grönroos (1984) proposed the Grönroos model, which is

a consideration of the service outcome component. Many researchers have stated that industry-specific determinants are necessary for more accurate measurements (Babakus & Boller, 1992; Ladhari, 2008; Caro & Garcia, 2007). However, there has never been universal agreement on the model and the service quality factors. However, despite the lack of an agreed approach, there have been many studies on quality in the service sector, and these studies have measured service quality.

The port industry and ports, which are highly competitive, have a limited number of studies on measuring service quality, although many studies have been conducted in many industries (Yeo et al., 2015). Providing quality service in a competitive port environment is essential for success and survival (Ugboma et al., 2006). Therefore, measuring port service quality is inevitable for customer retention, customer base expansion and port success. For this reason, many authors have conducted various studies on service quality. Some of the literature studies on port service quality are listed below.

In the case of Valencia, Spain, Lopez and Poole (1998) studied quality assurance in the port logistics chain. The result of the research was that the accreditation system of the port of Valencia in Spain can be an improvement in the quality and efficiency of port services.

In their hierarchical approach to conceptualising perceived service quality, Brady and Cronin (2001) used the Lisrel statistical program and questionnaire technique. Based on qualitative and empirical research, they found that a third-order factorial structure linking perceived service quality to specific and applicable factors was appropriate. These are outcome, interaction and environmental quality. In addition, they found that three sub-dimensions define the basis of each service quality perception.

Ha (2003) defined service quality factors related to port activities. These include port location, port turnaround time, port management, available facilities and port costs. He also developed measurement tools for port service quality, including relational, external and internal (Cho et al., 2010).

Ugboma et al (2004) conducted a study utilizing the SERVQUAL model and survey methodology to assess service quality within ports situated in a developing nation. The findings of their research highlighted that the attributes "responsiveness" and "tangible assets" (such as modern cargo handling equipment) within the port service industry received commendable ratings. However, the aspect of empathy garnered comparatively lower scores. Consequently, the study recommended that port managers prioritize enhancing empathy among the factors contributing to service quality.

Thai (2008) devised and validated the ROPMIS measurement model to scrutinize service quality within port transportation. The model encompassed six dimensions: resource, outcome, managerial, procedural, Image, and social accountability. In the study by Yeo et al. (2015), this scale was identified as having five dimensions.

Chang and Thai's (2016) study explored the correlation between port security quality, port service quality, customer satisfaction, and loyalty. They conducted a survey targeting shipping lines and agents in Taiwan, revealing that high port security quality positively influences both port service quality and customer satisfaction. Additionally, superior port service quality directly enhances customer satisfaction, leading to increased loyalty thereafter.

Kartal and Aydın (2022) directed their study towards evaluating the service quality provided by port companies. Their research specifically explored the impact of service quality on customer satisfaction and loyalty. Questionnaires were distributed to 125 users of Hopa Port services. The outcomes of the investigation underscored the significant influence of customer satisfaction on fostering customer loyalty.

1.2 Service Quality and Customer Satisfaction

Satisfying customers breeds loyalty towards the company, ultimately driving its success (Moore et al., 1998). In today's cutthroat business landscape, maintaining top-notch service quality is paramount for achieving success. The decline in customer satisfaction, often linked to inferior service quality, remains a significant worry for organizations. Nowadays, customers possess heightened sensitivity towards service standards, elevating their expectations (Fullerton, 2003). As a result, the correlation between perceived service quality and customer satisfaction remains robust (Heskett & Swe, 1997). Marketing experts advocate for service providers to diligently monitor customer service expectations (Namasivayam & Hinkin, 2003), as satisfaction escalates when these expectations are met.

Numerous studies have explored the correlation between service quality and customer satisfaction, consistently affirming its positive influence. Iacobucci, Ostom, and Graysan (1995) differentiated between service quality and customer satisfaction, highlighting quality as a managerial construct while satisfaction stems from the customer's service encounter. Cronin and Taylor (1992) delved into the conceptualization and evaluation of service quality and its association with customer satisfaction and purchasing behavior. Their findings emphasized the importance of measuring service quality based on performance and its role in shaping consumer satisfaction, influencing purchase intention.

Shanaki et al. (2012) scrutinized the relationship between customer satisfaction and service quality factors within Shahid Rajayi Port in Iran. Through statistical analysis, they established the significant impact of service quality on port customer satisfaction. Similarly, Şahin and Şen (2017) gathered data from various service companies to explore the link between service quality factors and customer satisfaction. Their SPSS analysis confirmed a notable relationship between service quality and customer satisfaction.

While port service quality and its relationship with customer satisfaction are extensively discussed in the international literature (Thai, 2016; Chang and Thai, 2016; Onyemechi et al., 2017; Cho et al., 2010; Shanak, 2012), the economic importance of ports and their developing role in supply chain and logistics management are emphasized in the national literature (Tatar et al., 2019; Gören, 2021). This study seeks to fill this gap by validating the port service quality model and investigating its influence on customer satisfaction.

Finally, hypothesis 5 proposes that the Image and social responsibility factors positively influence customer satisfaction. This research aims to assess whether the hypotheses align with the research purpose.

2. Methodology

This study used SmartPLS4 structural equation modeling to analyze the data. Davari and Rezazadeh (2013) stated that the PLS-SEM model is suitable for simultaneously estimating a group of equations and improving the relationship between variables. PLS-SEM is a valuable tool, especially when the number of participants is limited, and the data are unsuitable for normal distribution (Wong, 2011). In this program, analyses are performed in two steps. In the first step, reliability and validity analyses of the variables in the model are performed using the external model. The relationships between dependent and independent variables are analyzed in the second step with the structural model (Yıldız, 2020).

2.1 Research Model and Hypotheses

The aim of this study is to evaluate the service quality offered at Mersin Port using the service quality scale developed by Thai (2008) and defined as 5 dimensions by Yeo et al. (2015) and to investigate the effect of service quality factors on customer satisfaction. The model showing the conceptual framework of service quality factors and customer satisfaction is given in Figure 1 below.
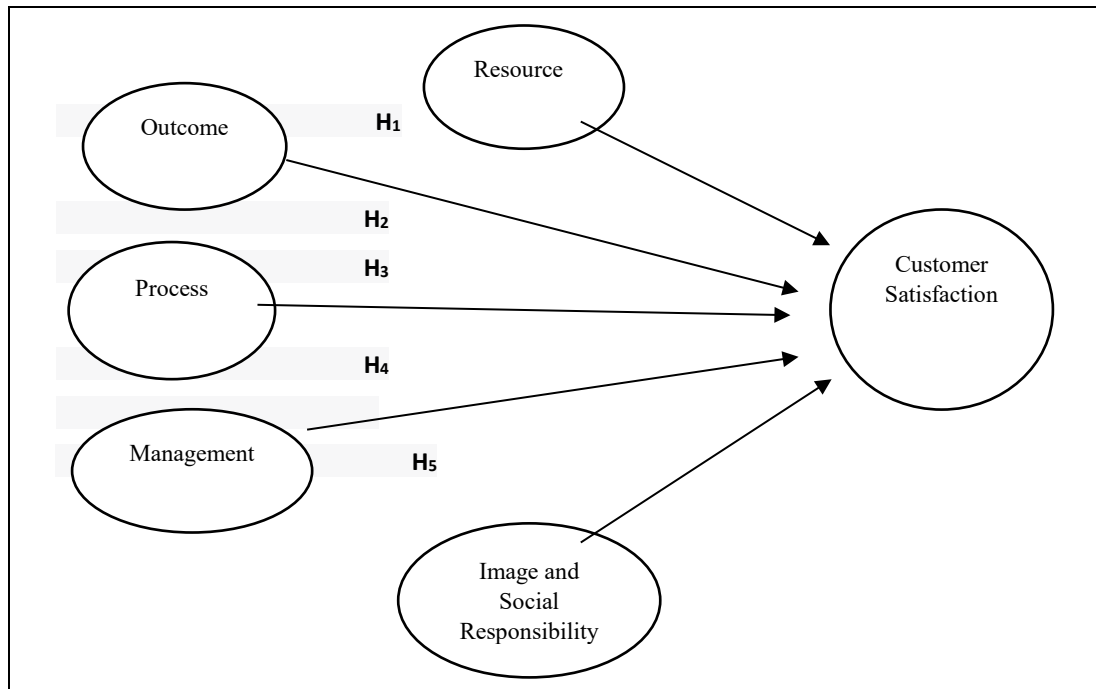
Figure 1: Conceptual framework of service quality factors and customer satisfaction

The review of existing literature has highlighted a noticeable gap in research concerning the influence of port service quality on customer satisfaction. Thus, this study seeks to address this gap by exploring how the five dimensions of port service quality impact customer satisfaction. The ensuing hypotheses have been formulated accordingly.

In particular, Hypothesis 1 posits that the resource dimension positively correlates with customer satisfaction, while Hypothesis 2 suggests that the outcome dimension also contributes positively to customer satisfaction. Hypotheses 1 through 5 collectively propose that various dimensions of service quality positively influence customer satisfaction.

Furthermore, Hypothesis 3 proposes that the process dimension enhances customer satisfaction and Hypothesis 4 posits that the management dimension likewise fosters positive customer satisfaction. These hypotheses underscore the significance of process efficiency and effective management in bolstering customer satisfaction.

Lastly, Hypothesis 5 posits that the Image and social responsibility dimension positively impacts customer satisfaction, reflecting the broader societal and perceptual aspects of port service quality.

This research examines the alignment of these hypotheses with the overarching research objectives.

2.2 Population and Sample of the Study

Mersin Port is considered in the research. Mersin Port is located in the northeast of the Mediterranean Sea in the south of Türkiye. With its facilities and capacity, the port provides service to all types of cargo. It is also the largest port in Türkiye that can provide all port services in the same area. It is also at the intersection point of the main port routes. The port's geographical location is privileged in the Turkish economy and the Eastern Mediterranean due to its multi-directional international and domestic connections (Tiken, 2022). There are 21 berths in the port. At the same time, more than 30 million tons of cargo are handled in the port annually (www.mersinport.com.tr, 2023). The primary sample of this research consists of two port users who have received service from Mersin Port in the last ten years.

2.3 Data Collection Method

The research employed the survey method, a prevalent quantitative research technique in social sciences (Büyüköztürk, 2005), for data collection. According to Thomas (1998), a questionnaire is a research tool comprising inquiries about individuals' beliefs, attitudes, behaviors, and living conditions. It offers advantages such as speed and cost-effectiveness compared to other methods like interviews and observations.

The questionnaire used in the study comprised three sections. The first section gathered demographic data, while the second incorporated a scale developed by Thai (2008) to assess port service quality. However, considering the strong correlation between organizations' perceived social responsibilities and their Image, they merged and refined the Image and social responsibility factors. To measure customer satisfaction, the scales utilized studies by Anderson et al. (2009), Pantouvakis (2010), and Cao and Chen (2011).

Participants were asked to express their views on statements regarding port service quality and their satisfaction levels with the services received, using a 5-point Likert scale ranging from "strongly disagree" to "strongly agree." Before administering the questionnaire, port managers assessed the clarity of the propositions. The questionnaire was distributed to port users via telephone, email, and face-to-face interactions.

In order to calculate the sample size, 10-15 samples are needed for each proposition (Field, 2005). In addition, a sample size of 100 is defined as inadequate, 300 as approximately adequate, and 1000 as perfect. Tabachnick and Fidell (2001) and Child (2006) stated that a sample size of 5 times the number of items in the scale is sufficient. According to Tavşancıl (2002), it should be at least five times or even ten times the number of items. According to Kline (1994), a sample of 200 people is generally sufficient, and if the factor structure is clear and few, the sample size can be reduced to 100. However, it is emphasized that a larger sample size would be beneficial for better results. This study determined the sample size to be 215, more than five times more than the thirty-one items in the scales. In this context, it can be stated that the sample size is sufficient.

3. RESULTS

The results of the data analyses collected from Mersin Port users are presented in detail below. Firstly, demographic data on the gender, age, and occupation of port users are presented, and then the data collected using the port service quality and satisfaction scale are analyzed.

3.1. Demographic Data Analysis

In this study, which was conducted to determine the effect of service quality on customer satisfaction in Mersin Port, 87% of the participants were male, and 13% were female. 0.5% of the participants have a doctorate, 6.5% have a master's degree, 26.5% have a college degree, 21.4% have a high school degree, 39.1% have a bachelor's degree, and 6.5% have a primary education. In terms of age distribution, 6% of the participants are between the ages of 18-25, 34.4% are between the ages of 26-32, 34% are between the ages of 33-40, 21.4% are between the ages of 41-50, and 4.2% are 51 years and over. According to the occupational distribution, 20% of the participants are forwarders/shippers, 12% are surveillance, 45% are customs brokers, and 23% are in other fields.

3.2. Findings

Before analyzing the model developed within the research's scope, the study assessed the validity and reliability of its constructs. Internal consistency reliability, discriminant validity, and convergent validity were scrutinized. Internal consistency reliability was evaluated using Cronbach's Alpha and combined reliability coefficients. Convergent validity was examined through mean-variance explanation and factor loading values. Table 1 illustrates the results concerning the internal consistency reliability and convergent validity of the constructs in the study.

Table 1: Model Fit Indexes

Indicators	Factor Loadings	Cronbach Alpha	AVE	CR
Resource1	0.889	0.915	0.747	0.936
Resource2	0.894			
Resource3	0.780			
Resource4	0.873			
Resource5	0.881			
Image and Social 1	0.829	0.806	0.821	0.958
Image and Social 2	0.881			
Image and Social 3	0.886			
Image and Social 4	0.903			
Image and Social 5	0.911			
Image and Social 6	0.865			
Image and Social 7	0.917			
Satisfaction1	0.927	0.950	0.835	0.962
Satisfaction2	0.896			
Satisfaction3	0.953			
Satisfaction4	0.913			
Satisfaction5	0.876			
Process1	0.925	0.930	0.827	0.950
Process2	0.924			
Process3	0.927			
Process4	0.861			
Management1	0.874	0.961	0.837	0.968
Management2	0.934			
Management3	0.938			
Management4	0.905			
Management5	0.913			
Management6	0.922			
Outcome1	0.856	0.822	0.776	0.912
Outcome2	0.894			
Outcome3	0.897			
Outcome4	0.826			
Outcome5	0.848			
Outcome6	0.812			

Table 1 shows that the factor loadings of the variables in the measurement model were between 0.780 and 0.953. Cronbach Alpha coefficients were between 0.806 and 0.961, and combined reliability coefficients were between 0.912 and 0.968. Therefore, considering these values provides internal consistency and reliability. On the other hand, it was determined that the factor loading values used to determine convergent validity were between 0.780 and 0.953, and the average variance value explained was between 0.747 and 0.837. In this context, it was determined that convergent validity was also achieved (Hair et al., 2017).

The Fornell-Larcker test was employed to assess whether discriminant validity was achieved. As per Fornell and Larcker's (1981) guideline, the square root of the average variance explained (AVE) of the constructs should surpass the correlation coefficients among the constructs. The outcomes of the Fornell and Larcker test are presented in Table 2, demonstrating the extent to which discriminant validity is established.

Table 2: Discriminant Validity Results (Fornell and Larcker Criterion)

	Resource	Satisfaction	Image and Social Responsibility	Process	Management	Outcome
Resource	**0.864**					
Satisfaction	0.795	**0.914**				
Image and Social Responsibility	0.754	0.849	**0.906**			
Process	0.820	0.849	0.825	**0.910**		
Management	0.840	0.881	0.876	0.886	**0.915**	
Outcome	0.822	0.788	0.744	0.797	0.845	**0.881**

Table 2 shows that each construct's AVE square root value is higher than the correlation coefficients with the other constructs. In addition to the Fornell and Larcker test, Heterotrait-Monotrait Ratio of Correlations (HTMT) results were analyzed to determine whether discriminant validity was achieved. The results of the HTMT analysis are given in detail in Table 3 below.

Table 3: Discriminant Validity Results (HTMT Criterion)

	Resource	Satisfaction	Image and Social Responsibility	Process	Management
Resource					
Satisfaction	0.844				
Image and Social Responsibility	0.806	0.895			
Process	0.882	0.901	0.881		
Management	0.888	0.920	0.918	0.937	
Outcome	0.923	0.870	0.826	0.892	0.929

When the results of the HTMT criteria in Table 3 are analyzed, it is determined that all values are below the threshold of 1 (Ramayah et al., 2017). In this context, the scales used in the study fulfill the discriminant validity requirement. However, it is also necessary to examine the cross-loading values to ensure discriminant validity (Ali et al., 2018). According to the cross-loading criterion, the item load in one factor should have a higher value than all item loads in other factors (Hair et al., 2016). For this reason, the cross-loadings of the items were also examined in the study, and it was seen that the statements had the highest factor loadings under the structure. Therefore, it was determined that discriminant validity was achieved.

Outer VIF (Variance Inflation Factor) values were calculated to determine whether there was a multicollinearity problem between the scales used in the study. The results obtained in Table 4 are given below.

Table 4: Analysis Results for OuterVIF Values

Indicators	VIF
Resource 1	3.429
Resource 2	3.573
Resource 3	2.218
Resource 4	3.432
Resource 5	3.122
Satisfaction 1	4.787
Satisfaction 2	3.718
Satisfaction 3	6.869
Satisfaction 4	3.937
Satisfaction 5	3.046
Image and Social 1	4.184
Image and Social 2	5.378
Image and Social 3	3.613
Image and Social 4	5.533
Process 1	4.319
Process 2	3.801
Process 3	4.330
Process 4	2.397
Management 1	3.609
Management 2	5.881
Management 3	6.261
Management 4	4.419
Management 5	4.852
Management 6	5.066
Outcome 3	2.652
Outcome 5	2.001
Outcome 6	2.090
Image and Social 5	3.707

The analysis found that the outer VIF values of the scale expressions were below 10, indicating no problem of multicollinearity among the scale expressions (Topal et al., 2010). The study also analyzed the model's goodness of fit values; the results are presented in Table 5 below.

Table 5: Scales Model Goodness of Fit Analysis Results

Model Fit Indexes	Results
SRMR	0.049
d_ULS	0.964
d_G	1.166
Chi-square	1.378.286
NFI	0.829

As a result of the analysis performed to calculate the model goodness-of-fit values, the SRMR value was accepted as it was found to be less than 0.08 (SRMR=0.049) (Hu & Bentler, 1999). Then, the NFI value was analyzed and determined to be above the threshold value of 0.80 (NFI=0.829) (Byrne, 1994). The d_ULS and d_G values, among the goodness of fit values, were also higher than the threshold value of 0.05 (Dijkstra & Henseler, 2015). Considering all these values, the goodness of fit values of the research model gives good results.

Figure 2 below shows the model created within the study. It shows the factor loadings of service quality and customer satisfaction variables and their significance.
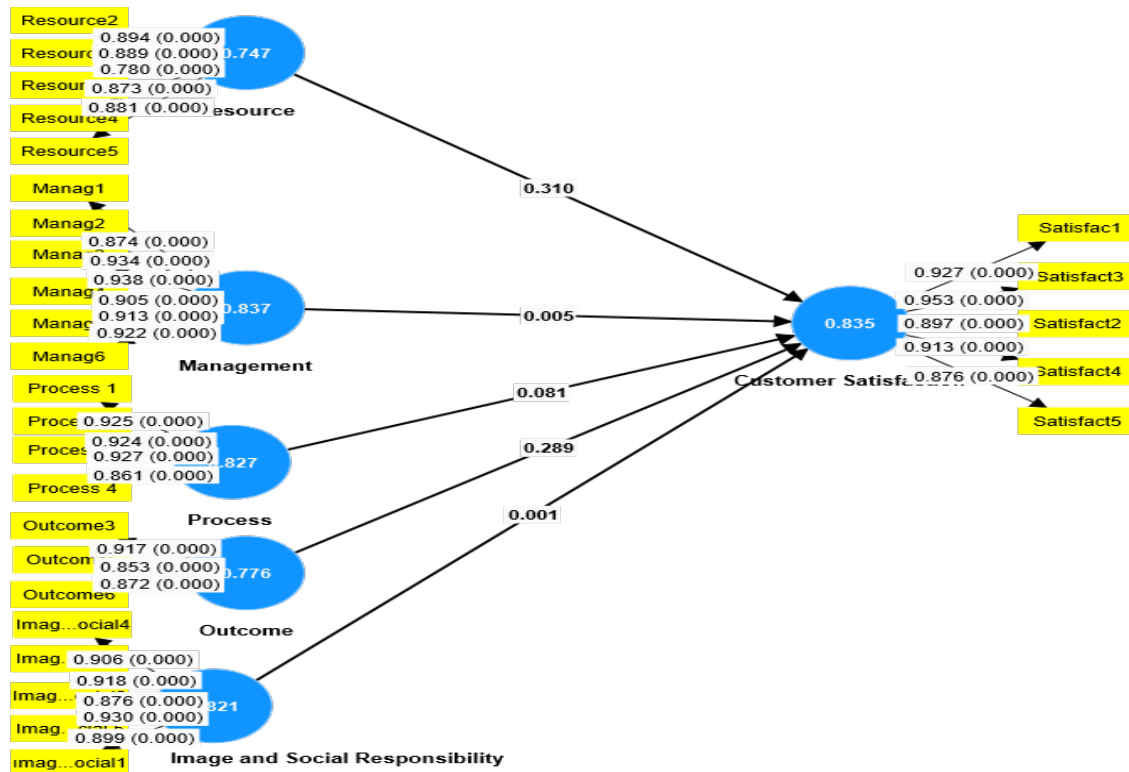

Figure 2: Port Service Quality and Customer Satisfaction Model Based on PLS-SEM

The Confirmatory Factor Analysis model of the scales used in the study is shown in Figure 2. As can be seen in the figure, the highest factor loading of the port service quality scale is 0,938. The highest factor loading of the satisfaction scale is 0,953. Again, as can be seen in the figure, all factor loads were found to be significant.

Path analyses were performed to test the hypotheses developed in the study. The results of the analysis are shown in detail in Table 6.

Table 6: Hypothesis Test Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Hypotheses
Image and Social Responsibility -> Satisfaction	**0.284**	**0.276**	**0.084**	**3.362**	**0.001**	**H_5- Accepted**
Management -> Customer Satisfaction	**0.312**	**0.311**	**0.112**	**2.783**	**0.005**	**H_4- Accepted .**
Outcome -> Customer Satisfaction	0.080	0.081	0.075	1.060	0.289	H_2- Rejected
Process -> Customer Satisfaction	0.202	0.208	0.115	1.746	0.081	H_3- Rejected
Resource -> Customer Satisfaction	0.088	0.089	0.087	1.015	0.310	H_1- Rejected

Table 6 shows the analysis results of the social responsibility and Image (t=3.362 p=0.001) and management (t=2.783 p=0.005) factors of port service quality, which positively affect customer satisfaction. However, the factors of resources (t=1.015 p=0.310), process (t=1.746 p=0.081) and outcome (t=1.060 p=0.289) do not significantly affect customer satisfaction. Therefore, hypotheses H4 and H5 are accepted, and hypotheses H1, H2 and H3 are rejected.

CONCLUSION

In the port industry, where there is intense competition, evaluating port service quality has become effective in port user selection. Therefore, measuring and evaluating port service quality have become very important for both port users and port managers.

This study discusses the service quality of Mersin Port and examines whether the service received from Mersin Port affects the satisfaction of port customers. The results of the analyses are remarkable. It has been determined that the resource, process, and outcome dimensions of port service quality do not positively affect customer satisfaction. On the other hand, Image, social responsibility and management dimensions of port service quality effectively ensured customer satisfaction.

The resources dimension of port service quality refers to the state of equipment, hardware, facilities, and infrastructure of the port. As a result of the analyses, it is determined that this dimension significantly affects customer satisfaction less than others. In this context, port customer satisfaction can be increased by different factors beyond providing physical equipment and facilities. Yeo et al. (2015) investigated the effect on port service quality and customer satisfaction in Korean container ports. They concluded that the dimension of resources only significantly affects customer satisfaction. A similar study was conducted by Kartal and Aydın (2022), and in their study in which they measured the service quality of Hopa Port, Kartal and Aydın concluded that the resources dimension of port service quality did not affect customer satisfaction. Therefore, it can be said that the research result parallels other studies in the literature.

Outcome, one of the dimensions of port service quality, represents the timely and safe delivery of the goods or services sent for delivery. In addition, the outcome dimension refers to the performance speed of the service provided, low waiting times, accurate and timely information and error-free documentation processes. As a result of the analysis, it was determined that the outcome dimension of port service quality dimensions does not positively affect customer satisfaction. This result is in line with the research conducted by Yeo et al. (2015).

Therefore, different factors beyond timely and safe delivery effectively ensure the satisfaction of port customers.

The process dimension in the service quality scale refers to the port employees providing accurate information to the port customers, their interest in meeting their needs, and their ability to respond quickly to the port users who receive service from the port. As a result of the research, it was determined that the process dimension of the port service quality dimensions did not positively affect customer satisfaction. This result is similar to the study of Yeo et al. (2015).

The study concluded that service quality image and social responsibility dimensions positively affect customer satisfaction. The image dimension reflects the customers' views towards the port. The social responsibility dimension refers to avoiding the harmful performance of port services regarding the sustainability of people and the environment. In ensuring customer satisfaction, customers' views towards the port and the sensitivity of port services towards the environment and people increase the satisfaction of port customers. This result is in line with the results of the studies conducted by Yeo et al. (2015), Kartal and Aydın (2022) and Thai (2016) in the literature.

Finally, within the study's scope, it was investigated whether management, one of the dimensions of port service quality, positively affects customer satisfaction. The management dimension refers to the correct transfer between employees and customers using information technologies and improving customer-oriented processes. As a result of the analysis, the management dimension of port service quality positively affects customer satisfaction.

This research not only focuses on the physical resources of port service quality but also emphasizes the importance of management from a broad perspective. It also provides information for port managers. Port managers have to invest in the quality of port services. The service quality offered in ports is critical to retaining existing customers and attracting potential customers. Mersin Port authorities should pay special attention to service quality and plan new strategies to improve it. To increase customer satisfaction, they must pay attention to management, image, social responsibility, and environmental management activities.

This study has confirmed that providing a quality port service significantly and positively impacts customer satisfaction. The hypothesis results show that image, social responsibility, and management port service quality dimensions positively affect customer satisfaction. Other studies support the conclusion that port service quality significantly affects customer satisfaction.

This study considers the Mersin Port sector, so its generalizability may be limited. However, researchers can extend the research by applying similar studies to different ports in the future. Future research may examine the effect of port service quality on other essential variables, such as customer loyalty and repurchase intention, and even consider customer satisfaction as a mediating variable.

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