
MERSİN UNIVERSITY 1992
MEUJMAF
Mersin University
Journal of Maritime Faculty
e-ISSN 2687-6612
December 2021 Volume: 3 Issue: 2

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PUBLICATION FREQUENCY

The MEUJMAF accepts the articles in English and is being published 2 times (December and June) a year.

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Volume 3 – Issue 2

ARTICLES

Mersin University Journal of Maritime Faculty

Mersin University Journal of Maritime Faculty (MEUJMAF)
Vol. 3, Issue 2, pp. 28-36, December 2021
ISSN 2687-6612, Turkey
DOI: 10.47512/meujmaf.1035148
Research Article

DETERMINING ACTORS FOR POTENTIAL KUŞADASI MARINE TOURISM CLUSTER†

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Received: 10/12/2021 Accepted: 23/12/2021

ABSTRACT
Industrial Clusters are regional concentrations of businesses and organizations that compete with each other, complement and depend on each other. Clustering phenomenon is developing rapidly both in the world and in Turkey. The reason for this is that clustering provides significant benefits to sectoral, regional and national competitiveness. In this study, it is aimed to determine the cluster actors of a potential Kuşadası Marine Tourism Cluster. Kuşadası Marine Tourism actors are determined by the face-to-face interview method, which is a qualitative research method, and studies in the literature. Kuşadası region have a cruise terminal, a marina, surface and underwater sports center, daily excursion tour operators, yacht manufacturing, maintenance and repair enterprises, food, beverage and entertainment businesses, yacht agencies, cruise travel agencies and tour operators, transportation businesses and small industrial sites, etc. The gathering of service providers in the value chain is not sufficient for clustering. Public institutions, chambers and associations, research institutions should also be included in the cluster ecosystem according to Porter's Clustering Theory. Potential Kuşadası Marine Tourism Cluster actors are examined in four different groups. These are service providers (firms), government/policymakers, hybrid organizations and academia. To sum up, it is of great importance to carry out the actor analysis carefully in a region where potential clustering may occur. Once the actors are identified, it is possible for the cluster to be implemented and to support regional development by providing competitive advantage and cooperation.

Keywords: *Cluster, Cluster Actor, Kuşadası Region, Marine Tourism*

† This study is a version of a doctorate thesis titled "A Research on Clustering Approach and Factors affecting the Competitive Advantage in Marine Tourism Sector in Turkey", Dokuz Eylül University Graduate School of Social Sciences.

1. INTRODUCTION

The clustering approach, which increases sectoral, local and regional competitiveness and is seen as a regional and national development model, has become increasingly important recently. This approach, which finds an extremely wide area especially in developed countries, has started to be applied in some developing countries (Bulu and Eraslan, 2004).

Clustering theory was put forward in Porter's study "The Competitive Advantage of Nations" (1990) as a result of national competitiveness studies in various industrialized countries. Clustering is an approach that includes contemporary concepts and enables the creation of competitive structures at the regional level for both small and large companies. At this point, clusters bring together local governments, public authorities, private institutions, research institutions, non-governmental organizations and actors from other segments of society. Thus, planning and implementations are carried out with the participation of local actors, leaving the centrality. This process is aimed at selecting sectors and/or sectors with high competitiveness, completing the missing actors, ensuring communication between them, and ultimately increasing the international competitiveness of the sector (Erkut, 2011: 17).

While there are many examples of maritime and marine clusters in the world, no other example could be found in Turkey except for the Muğla Marine Tourism Cluster initiative and Fethiye region. Marine tourism clustering, which is the common area of maritime and tourism in the academy, have very limited academic studies. Existing studies have focused only on a single cluster actor. In order to fill this gap in the literature, it is aimed to determine the potential Kuşadası cluster actors holistically and to shed light on future studies. In this context, with face-to-face interviews with industry experts, an answer to the research question "Who are the actors for a potential marine tourism cluster that may occur in the Kuşadası region?" has been sought.

2. CONCEPTUAL FRAMEWORK OF CLUSTER AND CLUSTERING

Cluster is defined as *"a whole, set, group, a group composed of things that are similar to each other or of the same kind"* (Turkish Language Association, 2021) according to the Dictionary of Turkish Language Association. Almost all theoretical and applied studies dealing with new industrial production and geographies deal with the concept of industrial cluster and include many different definitions on the subject Table 1.

It is accepted that the industrial cluster started with Marshall, whose entry into literature on economics and business management. Marshall studied industrial concentrations (Şener Uzcan, 2017). According to Alsaç (2010), the studies after Marshall focused mainly on the selection of location of enterprises. Until the 1970s, the positive externalities that would emerge with the network of businesses to establish were not taken into consideration. While many Fordist mass-producing industrial enterprises were adversely affected in the economic crisis that emerged in the 1970s, small and medium-sized enterprises in North / Central Italy survived the crisis successfully (Eraydın et al., 2005).

Table 1: Definitions of Clustering

Author, year	Definitions
Marshall, 1920	Three distinct motorists of agglomeration: labor market pooling, input-output linkages and knowledge spillover. Each of these mechanisms is associated with other or prductivity advantages to enterprises.
Rosenfeld, 1997	A cluster is a formation that is formed by the concentration of similar, related and complementary business groups in a geographical area, is open to communal business activities, communication and dialogue, sharing common opportunities and threats by sharing specialized infrastructure, labor and services.
Porter, 1998	Clusters are the geographic position of affiliated enterprises, service manufacturers, specialized suppliers, enterprises in related industries and associated organizations (universities, think tanks, standards-setting agencies, trade associations and vocational training providers) that compete with each other in a particular field but also cooperate.
Simmie & Sennett 1999	The innovative clusters encompass a large number of interrelated industrial and service firms.
Enright & Roberts ,2001	Clustering is a combination of firms and organizations producing interrelated goods and services.
Bapista, 2001	Clustering can be defined as the gathering of sectoral concentrated enterprises in the same geographical area.
Bulu et al., 2004	Clustering is a regional concentration of businesses and organizations that compete, complement, and are interconnected.
Flowers & Easterling, 2006	Clustering is a combination of each other and affiliated companies and institutions that create a greater value than the sum of individual values.
Malmberg & Power, 2006	Clustering is the geographic proximity created by the cooperation of interrelated institutions and affiliated companies in a specific area.
Karataş, 2006	Clustering does not mean that the parties are together only in terms of geographical area. It also refers to a field of activity that includes competitiveness, collaborative activities, learning, innovation generation, information exchange and interaction processes.
OECD, 2009	Clusters are the geographic concentrations of institutions and organizations working in related activities.
Öcal and Uçar, 2011	Clusters constitute a specific area with easy information flows, face-to-face relationships, R&D activities, advanced services, skilled workforce, collaboration, and the ability to benefit from local social capital.
Saric, 2012	Clusters are a geographical concentration of linked firms and institutions that are interrelated in terms of a common resource base and / or product market.
Nallari and Griffith, 2013	An industrial cluster represents an agglomeration of diverse actors—firms, service providers, suppliers, and related companies—in a specific industry

The *"cluster model"* was reintroduced in the USA in the 1990s, within the scope of evaluation of international competition strategies (Karataş, 2006). Porter is the scientist who first conceptualized and

introduced the cluster. Porter (1990) searched for an answer to the question of *"why a country has achieved international success in a certain industry"* in *"The Competitive Advantage of Nations"* book. Porter identified the industries in which countries have a competitive advantage as part of the study. When the determined industries are examined in detail, determinants of competitiveness that are thought to bring success are defined. These determinants are defined as Diamond Model *("factor conditions; demand conditions; related and supporting industries; firm, strategy, structure and rivalry; government and chance").* In his study, Porter also found that the location of competitive industries in countries is not geographically dispersed. Clusters play a crucial role in competition and have significant consequences for businesses, governments, universities, and other institutions in an economy (Porter 1998). The concept has rapidly become popular in the world since 1998 and has provided the necessary infrastructure for companies to gain competitive advantage through external resources (Bulu, 2005).

Clustering is the geographical concentration of mutually dependent actors (businesses and supporting institutions and organizations) operating in the same sector, operating in the same value chain, cooperating, and competing with each other, having commercial relations between them. These actors are producers, suppliers, customers, information producing institutions, research centers, non-governmental organizations, consultancy companies, public institutions and/or organizations, local government institutions and / or organizations, media and financial institutions (Yüzak, 2008; Alüftekin et al., 2009; Bakan et al., 2009; Eraslan et al., 2010).

Since clustering does not have a common description, it is obvious that it has to have at least some features related to clusters (Göçen, 2013). Andersson (1985) determines the elements of the cluster as follows: (1) tougher factors such as geographical concentration, social capital and learning process, such as soft or external economic scale, (2) all players unite around specialization or a common core activity, (3) many players; clusters are made up of not only businesses but also public institutions, academic environment, financial sector players, (4) Cluster lifeline cycle (emergence, growth, change or disappearance of the cluster) and (5) Innovation, technological, commercial and / or organizational change.

According to Simmie (2004), the characteristics of the cluster are; agglomeration and interconnection. Interconnection is considered to be competitive and collaborative relationships that have arisen between local actors. Agglomeration reflects the geographical concentrations of industry and related activities.

In a regional economy, criteria of a success cluster are geographical scope, depth, breadth, activity base, innovative capacity, growth potential, governance structure, competitive position, cluster type and ownership structure (Enright, 2000). According to IGEME (2005: 14), factors of success clusters are strong initiative, regional and economic development strategies, partnerships, technology, co-petition, budgeting for recognition, mutual customer, supplier and service providers, infrastructure systems, qualified workforce and R&D centers.

The advantage of clustering is increasing of economic growth, increasing of productivity, easy access of public body and their services, measurement of performance and incentives (Porter, 1990; 2000, Bapista, 2001).

3. CLUSTER ACTORS

In Porter's definition of clustering, the links and complementarity relations between firms and other institutions and organizations are emphasized. Attention is drawn to the importance of these connections and mutual relations in achieving the competitiveness of clusters (Kuah, 2002: 212). Based on the definitions of clusters, it is understood that the actors at the center of clusters are firms. It is known that companies are at the center of industrial zones and agglomerations. In this context, there are basic factors such as cooperation, trust environment and network structure that distinguish clusters from these concepts. This shows that the cluster includes different actors as well as companies (Temel, 2017). Clusters are formed with the participation of various actors such as education, research, public service organizations related to enterprises in the same value chain. Therefore, it would be useful to summarize the clustering actors and their relationship with cluster formation to understand the clustering phenomenon (Sevsay, 2016).

There are various methods such as stakeholder analysis in the literature to determine the actors in cluster and the relations between these actors. Wolfe and Gertler (2004: 15-16) classified the stakeholders of regional clusters as follows: *"lead, smaller and mid-sized firms; industry associations, chambers of commerce, local political leaders and "civic entrepreneurship"; government agencies, universities, colleges and other institutions for research and training and financial sector"*. On the other hand, the most general clustering actors' classification in the literature; *firms, government/policymakers, academia, hybrid or "glue" organizations and financial actors* (Andersson et al., 2004: 25).

Firms: Firms are the actors that constitute the most important part of the cluster (Karahan, 2019). Firms play a central role in clustering activities and policies based on cluster definitions. (Sölvell et al., 2003:18). The main strength of the cluster consists of companies operating in limited geography and in a certain sector. Other actors of the cluster are auxiliary actors who perform their functions to provide and support synergy between companies (Karahan, 2019). According to Andersson et al. (2004), businesses should look after their interests. Their participation in the cluster should not be for the benefit of the public, but to increase their sales and profitability. Firms may avoid cooperation for fear of revealing their assets to competitors through joint ventures.

Academia: The existence of companies alone is not sufficient for cluster formation. Vocational schools, universities, technology centers, laboratories, which can be expressed as academic institutions or research societies; are the most important actors in the cluster after firms (Sölvell et al., 2003:18). Academic institutions provide information to companies and make policy recommendations and form a basis for interaction between companies (Aziz and Norhashim, 2008: 355). While universities, schools and institutes contribute to scientific and technological developments, media organizations also promote clusters to the world and support the creation of brands (Alsaç, 2010: 33; Kunt, 2010: 12). These actors have to produce the information needed by the cluster, make policy recommendations, and train the workforce that will work in the sector (Karahan, 2019). However, there are some problems regarding the participation of academic institutions in clustering activities. The most frequently mentioned problems are the lack of dialogue between the private sector and academic institutions, the different purpose functions of both groups, and the inadequacy of entrepreneurial experience (Andersson et al., 2004).

Government/Policy Makers: Public institutions in clusters are grouped under three categories as international, national and regional. At the international level, some actors provide funds to regional actors, contribute to the modernization of infrastructures and R&D cooperation between countries. At the national level, country authorities and local authorities can be counted (Andersson et al.,

2004: 94-95). The role of the public in the cluster is regulating and encouraging. Structural reforms necessary for the improvement of the business environment are made by the public. Supporting functions such as infrastructure, research laboratories, educational institutions, which the private sector cannot afford, are provided by the public, especially in the early stages of the cluster. In addition, by giving some incentives and making tax regulations, the public supports the sectors that it foresees to be clustered, especially in the initial stages (Karahan, 2019).

Financial Actors: Financial institutions include actors with their own goals, boundaries and portfolio preferences, such as banks, public pension funds, insurance companies, mutual funds and capital owners. To promote the improvement of clusters, financial institutions make applications such as loans and venture capital to existing or newly established companies (Andersson et al., 2004:99). Financial institutions, whether private or public institutions, should approach cluster actors with long-term service and solution proposals that will both improve the cluster and expand its existence in the long run, rather than short-term profit logic in providing the loans needed by the clusters (Şen, 2016).

Hybrid or *"glue"* organizations*:* Cooperation organizations are chambers of commerce, industry associations, professional associations, trade associations, technology transfer associations, quality centers, think tanks, university alumni associations, etc. organizations (Sölvell, 2008). These institutions play an active role in the creation and preservation of cluster identity (Andersson et al., 2004: 101). Especially in the first stages of clustering, they play a significant role in creating cluster identity, providing an environment of trust, setting goals and bringing companies together (Karahan, 2019). Companies can reach cheap training and consultancy services through these professional chambers, unions and non-governmental organizations, and these organizations can serve in a wider range in representing clusters. The services provided by these organizations have a crucial place in the formation and maintenance of successful clusters (Şen, 2016).

4. METHODOLOGY

According to Cluster Management Guide, 2007; DTM, 2009: Cansız, 2011; Erkut, 2011, the steps to be taken to identify the potential cluster are pre-Analysis for background information, **preparation of framework and internal organization**, financing and launching of cluster initiatives.

This study, it is aimed to determine the cluster actors of a potential Kuşadası marine tourism cluster. Kuşadası Marine Tourism Actors are determined by the face-to-face interview method, which is a qualitative research method, and the studies in literature.

Marine tourism clustering studies are very limited. Existing studies have examined clustering only for a particular actor. It is thought that the study, which will provide an overview of the marine tourism cluster actors, will make an original contribution to the deficiency in the literature. In order to fill this gap in the literature, it is aimed to determine the potential Kuşadası cluster actors holistically and to shed light on future studies. In this context, an answer to the research question *"Who are the actors for a potential marine tourism cluster that may occur in the Kuşadası region?"* has been sought. For the research design, primarily, the literature is searched for the perception of the cluster phenomenon. Considering the importance of defining cluster actors in cluster formation and policy, the marine tourism actors in Kuşadası region are determined by experts on a regional basis

For the use of roadmap to be implemented, an effective management unit must be established. This unit will provide coordination for the implementation of cluster activities and will also carry out monitoring and evaluation activities. For the healthy improvement of the cluster, it is essential to establish strong cluster management and coordination unit that communicates with all stakeholders and has its resources (DTM, 2009). Thanks to the created network, public institutions, non-governmental organizations and other supporting organizations that can obtain more reliable information about the economic problems and their causes will be able to continue their services more effectively (Kayasü and Yaşar, 2004). For this reason, it is of great importance to identify the actors in the Kuşadası Marine Tourism sector.

4.1. Sampling

To identify potential Kuşadası Marine Tourism cluster actors, face-to-face interviews are held with sector officials by making use of the information in the literature (see Table 2).

Table 2: Sample of the Study

Institutions and Organizations	**Title of the Interviewer**	**The data and hours of the interview**
Izmir Chamber of Shipping	Kuşadası Officer	18/10/2021 – 11:30-12:45
Kuşadası Chamber of Commerce	General Secretary	20/10/2021 – 10:30-11:15
Aydın Provincial Directorate of Culture and Tourism	Tourism Researcher	20/10/2021 – 14:00-15:00
Setur Kuşadası Marina	Marina Manager	03/11/2021 – 10:00 – 10:45
Kuşadası Surface Water Sports and Lifesaving Association	Vice-Chairman	03/11/2021 – 14:30-15:30
Adrenalin Water Sports – B.B.F Tourism	Entrepreneur	03/11/2021 – 16:00-16:30

Six experts are interviewed to identify the Kuşadası Cluster actors. One of the experts is an official from the ministry of culture and tourism, representing public institutions. On the other hand, meetings are held with three organizations representing non-governmental organizations. These are IMEAK Chamber of Shipping (DTO) and Kuşadası Chamber of Commerce (KUTO) and Kuşadası Surface Water Sports and Lifesaving Association officials. On the other hand, interviews are held with two service providers representing the sector; Setur marina and Adrenalin Water Sports – B.F.F Tourism. By explaining the general cluster actor list available in the literature to the experts in the sample, it is requested to determine the marine tourism stakeholders in Kuşadası.

5. FINDINGS

The study predicts that the clustering approach can be used to achieve a competitive advantage in the marine tourism sector. It is of great importance to identify cluster actors to reveal the clustering potential in the Kuşadası region and its contribution to the regional economy. In the Kuşadası region, there is an aggregation which operates in the marine tourism sector.

Kuşadası region has a cruise terminal, a marina, surface and under water sports center, daily excursion tour operators, yacht

manufacturing, maintenance and repair enterprises, food, beverage and entertainment businesses, yacht agencies, cruise travel agencies and tour operators, transportation businesses and small industrial sites. This region possesses all components of marine tourism. It is not enough for the companies in the value chain in the sector to come together for clustering. Public institutions, chambers and associations that provide public services that affect the sector and regulate them should be included in the cluster ecosystem. In addition, the involvement of research institutions to increase the innovation power and efficiency of the companies are important actors that make the cluster.

As a result of the interviews, potential Kuşadası marine tourism cluster actors are examined in four different groups. These are service providers (firms), government/policymakers, hybrid organizations and academia (see Table 3). Previously, no academic study has been found in which cluster actors are described in detail for any sector or industry and approached holistically.

5.1. Service Providers (Firms)

According to experts, service providers are divided into two main categories. These are main service providers and secondary service providers. Main service providers in Kuşadası marine tourism are Setur Kuşadası Marina, EgePort Kuşadası, Güvercinada and Güzelçamlı Daily Excursion Tour Operators and Surface and Under Water Sports Centers and Boats.

Kuşadası region possesses an institutional cruise terminal frequented by most cruise ships and passengers, an institutional marina with a high yacht mooring capacity, 32 surface water sports center, seven centers for underwater sports, and approximately 35 daily excursion tour operators.

Secondary service providers are yacht manufacturing enterprises, yacht maintenance and repair enterprises, yacht agencies, cruise travel and tour agencies, transportation enterprises, food, beverage, entertainment business, businesses in the mall, ship chandler, small business sites and other service providers.

In the Kuşadası region, yacht maintenance and repair operations are carried out at the marina dockyard and the industrial site in the region. There is one yacht manufacturing company in the region. It is also worked with other national and international companies for yacht manufacturing. There are approximately 20 yacht agencies and approximately five cruise travel agencies in the region. This region has EgePort – Scala Nuova Mall, Setur Kuşadası Marina Mall and Kuşadası Historical Bazaar.

5.2. Government / Policymakers

According to experts, this category is divided into public institutions and local government. The Marine Tourism sector must be connected with several ministries. These are Ministries of Transportation and Infrastructure; Commerce; Culture and Tourism; Environment, Urbanization and Climate Change; Interior; Treasury and Finance; Labor and Social Security.

In the Kuşadası region, the relevant units of the three ministries serve in their offices near the cruise terminal. These are Kuşadası Port Authority under the Ministry of Transportation and Infrastructure, Kuşadası Custom Directorate under the Ministry of Commerce and Kuşadası Tourism Information under the Ministry of Culture and Tourism. The Marine Tourism sector is also affiliated with Aydın National Real Estate Directorate under the Ministry of Environment, Urbanization and Climate Change, Coast Guard Command under the Ministry of Interior, Privatization Administration under the Ministry of Treasury and Finance.

Table 3: Findings of the Study

Service Providers (Firms)
Main Service Providers
Setur Kuşadası Marina
EgePort Kuşadası
Güvercinada Daily Excursion Tour Operators
Güzelçamlı Daily Excursion Tour Operators
Surface and Under Water Sports Centers and Boats
Secondary Service Providers
Yacht Manufacturing Enterprises
Yacht Agencies
Yacht Maintenance and Repair Enterprises
Cruise Travel and Tour Agencies
Ship Chandler
Transportation Enterprises (taxi, bus, car rental)
Food, Beverage, Entertainment Businesses
Businesses in the EgePort-Scala Nuova
Businesses in the Setur Kuşadası Marina
Small Industries Sites
Other Service Providers (Insurance, Finance, Security, Health, Telecom etc.)
Government / Policy-Makers
Public Institutions
Ministry of Transportation and Infrastructure – Kuşadası Port Authority
Ministry of Commerce – Kuşadası Custom Directorate
Ministry of Culture and Tourism – Kuşadası Tourism Information
Ministry of Environment, Urbanization and Climate Change – Aydın National Real Estate Directorate
Ministry of Interior – Coast Guard Command
Ministry of Treasury and Finance - Privatization Administration
Ministry of Labor And Social Security
Local Government
Aydın Metropolitan Municipality – Maritime Department
Kuşadası District Governorate
Hybrid or *"Glue"* Organizations
IMEAK Chamber of Shipping – İzmir Branch and Kuşadası Responsible – Marine Tourism Working Group
Kuşadası Chamber of Commerce (KUTO)
Kuşadası Chamber of Tradesmen and Craftsmen (KESO)
Kuşadası Chamber of Drivers Craftsmen
Association of Turkish Travel Agencies (TÜRSAB)
Aydın Kuşadası Güzelçamlı Sea Recreational Boats Motor Carriers Cooperative
Aydın Kuşadası Sea Recreational Boats Motor Carriers Cooperative
Turkish Underwater Sports Federation (TSSF)
Kuşadası Surface Water Sports and Lifesaving Association
Academia
Adnan Menderes University – Tourism Faculty, Didim Vocational High School
Dokuz Eylül University – Maritime Faculty – Tourism Faculty
Ege University – Çeşme Tourism Faculty - Urla Vocational High School
High School (Adviye - Ertuğrul Acun Vocational and Technical Anatolian High School, Maritime Department)
GEKA – Development Agency
International Sports High School

Local authorities in Kuşadası region are Maritime Department under Aydın Metropolitan Municipality and Kuşadası District Governorate.

The government / policymakers act more as a policymaker in terms of clusters. However, to benefit the regional development of the sector, it should act in cooperation with cluster actors. Governments may have

broader visions and objectives, overview and coordination capacity than the private sector. The participation of the public sector in the cluster gives rise to a broader macro agenda. In this respect, it is necessary to balance the macro agenda with more specific micro-level analysis and prioritization.

5.3. Hybrid or *"Glue"* Organizations

According to the experts, these organizations related to Kuşadası Marine Tourism are divided into trade associations, a federation, special associations and cooperatives.

IMEAK Chamber of Shipping, Kuşadası Chamber of Commerce, Kuşadası Chamber of Tradesmen and Craftsmen and Kuşadası Chamber of Drivers Craftsmen are trade associations related to Kuşadası Marine Tourism Sector. IMEAK Chamber of Shipping, as an active chamber in the sector, deals with the problems and suggestions of the service providers in the region, thanks to İzmir Branch and the Kuşadası responsible. It also has Marine Tourism Working Group. Water sports centers have an association which is named Kuşadası Surface Water Sports and Lifeguard Association. Also, these centers communicate with the Turkish Underwater Sports Federation in terms of documentation and certification. These documents and certifications are printer personnel list, lifeguard, dive center authorization certificate, personnel licenses, etc.

Daily Excursion Tours have two different cooperatives which are named Aydın Kuşadası Güzelçamlı Sea Recreational Boats Motor Carriers Cooperative and Aydın Kuşadası Sea Recreational Boats Motor Carriers Cooperative.

5.4. Academia

In Kuşadası Region, institutions producing information are universities, high schools and a development agency. Universities are Adnan Menderes University (Tourism Faculty and Didim Vocational High School), Dokuz Eylul University (Maritime Faculty and Tourism Faculty) and Ege University (Çeşme Tourism Faculty and Urla Vocational High School). High Schools are Adviye - Ertuğrul Acun Vocational and Technical Anatolian High School, Maritime Department and International Sports High School. Development Agency in the region is South Aegean Development Agency (GEKA).

6. DISCUSSION

In the study conducted by the Muğla Governance, marine tourism actors are determined as service sector actors, non-governmental organizations, local and central administrations, information producing institutions, certification institutions and regional health tourism cluster (Erarslan et al., 2010).

In the study of Artun (2017), the marine tourism cluster was evaluated at the local level specific to Fethiye. In this study, primary data obtains from local actors in Fethiye and secondary data obtained from literature review are used to analyze the potential of the marine tourism cluster. The actors concern with the strategic governance for marine tourism are Governorships, Municipalities, NGOs, development agencies, accommodation businesses, food & beverage businesses, marina businesses, yacht maintenance businesses, boat trip businesses.

The basic question the study of Arsezen and Yuzsever (2017) is *"why Turkey cannot capture the competitive advantage in marine tourism"*. The sample of the research is marine tourism sector in the Muğla Region. Service Sector (Supply Sector) Players, Food - Beverage Businesses, Travel Agencies and Tour Operators, Entertainment Businesses, Transportation and Logistical Businesses, Small Industry Sites, Financial Agencies, Civil Society Organizations, Public and local Administration, Certification Institutions, Information Producing Institutions and media.

The main purpose of the study of Doğan (2019) is to determine the level of strategic governance practices in the marina enterprises located in the Muğla marine tourism cluster and to propose recommendations to increase the level of strategic governance. In this way, it is thought that the impact of the sector on local development can be increased. Doğan has examined marine tourism actors under three headings. These are public institutions, private sector representatives and non-governmental organizations.

In the study carried out by the Turkish Undersecretariat of Foreign Trade, within the scope of the Development of National Clustering Policy project, yacht manufacturing actors are determined in detail. This determination has been made only in terms of actors related to yacht manufacturing. It does not cover all marine tourism actors (DTM, 2009).

Unlike the studies in the literature, the potential marine tourism actors for the Kuşadası region, which is a region other than Muğla, Fethiye and Bodrum regions, have been analyzed in detail and holistically. Five main service providers and around 40 actors are identified. Five main service providers and around 40 actors are identified. 11 different service providers are classified as secondary service providers. Nine central and local governments and nine non-governmental organizations that are or should cooperate with the sector have been identified. Three universities and affiliated faculties, two high school institutions providing marine tourism education and a development agency are found. In the study, all marine tourism actors are given by regional privatization.

7. CONCLUSION

Industrial clustering has become a more prominent trend in Turkey in recent years. Clustering, which is also encouraged by ministries and institutions, benefits sector stakeholders. Businesses that operate in clusters are more innovative and productive than those that operate alone. Clustering also has a significant impact on the enterprise's performance. This is because clustering enables the formation of networks and partnerships based on collaborative working relationships with a diverse range of local suppliers, competitors, public institutions, universities, research centers, and non-governmental organizations operating within specified geographic boundaries.

This study aims to determine the cluster actors of the Kuşadası Marine Tourism sector which have a potential cluster by the help of having all components of marine tourism. For this purpose, face-to-face interviews are held with sector officials by making use of the information in the literature.

The actors in Kuşadası Marine Tourism can be classified into four categories. There are four types of organizations in this category: service providers, government / policymakers, hybrid organizations, and academia.

Service providers are classified into two broad categories: primary and secondary service providers. Principal service providers can have a better understanding of sector and assess business potential. They can adhere to the potential cluster's policies to receive targeted assistance and protection from foreign competition. If the potential cluster's long-term objectives conflict with their own, they prioritize their own. Service providers are at the center of any cluster actions or policies that

may be considered. Both primary and secondary service providers are critical for cluster formation and regional development.

Government/ policymakers are divided into public institutions and local government. The government / policymakers act more as a policymaker in terms of clusters. However, to benefit the regional development of sector, it should act in cooperation with cluster actors.

Hybrid organizations related to Kuşadası Marine Tourism are divided into trade associations, federation, special associations and cooperatives. This group of actors helps to connect and integrate the roles and functions of other actors. Today, trade associations explore opportunities to promote cluster development among their members and often adopt a local and cluster-focused perspective.

In Kuşadası Region, institutions producing information are universities, high schools and a development agency. Academia is characterized by independence and specialized communication skills, often combined with in-depth knowledge and analytical competencies. These competencies position academia to assume supporting roles throughout the clustering process: anchoring the strategic direction and actions of cluster initiative with evidence and analysis and facilitating trust and building social capital. Academia can play a role in the ongoing evaluation of goals and actions and provide a skilled workforce in the Kuşadası Marine Tourism Sector.

To summarize, it is critical to do an in-depth actor analysis in a region with a high likelihood of clustering. After identifying the actors, it is possible to establish the cluster and contribute to regional development through competitive advantage and cooperation. It is critical to understand the roles of actors to build effective policies and strategies and to ensure the cluster's success. Cluster initiative, which requires a framework and internal organization preparation, is the first stage of cluster life cycle. The stages of developing framework and internal organization are as follows: regional strategic positioning, the definition of objectives, duties, and activities, identification of accountable individuals, formation of a project team, formation of a cluster advisory board, and provision of information and communication. To ensure the success of each stage, it is vital to identify cluster actors, comprehend their collaboration, and clearly define the capabilities of institutions and organizations, as well as their roles in the sector. The identification of cluster actors is crucial for the establishment of potential clusters.

Theoretical Implications of the Study

The academic contribution of this study is to fill the gap in the literature by adding a holistic perspective to marine tourism cluster actors. Cluster actors such as main and secondary service providers, public institutions and organizations, local governments, non-governmental organizations, information producing institutions have been determined in detail and a broader perspective on clustering has been tried to be provided.

By determining the actors that form the backbone of clustering studies, a contribution to the literature has been made and it is aimed to develop a perspective that can guide future studies. It is predicted that it will contribute to the marine tourism literature, which is seen as a research gap, and will guide future studies.

Practical Implications of the Study

Thanks to the study, the stakeholders of marine tourism sector will be able to foresee their collaborators and competitors in the sector. They will be able to analyze who are the stakeholders that they can cooperate with in the sector (main and secondary service providers, public institutions and organizations, local governments, non-governmental organizations and information producing institutions etc.). When they adopt a clustering approach to contribute to regional development, they will be able to make a conscious planning by seeing who the sector stakeholders are.

Limitations and Recommendations of the Study

Due to this study's limited duration and the seasonal nature of marine tourism, only a relatively small number of experts working with marine tourism stakeholders were contacted. This study focuses exclusively on the Kuşadası Marine Tourism sector.

The following studies will build strategies and policies for the region by conducting an in-depth cluster study of maritime tourism in the Kuşadası region. Comprehensive studies, including the overall marine tourism sector in Turkey, can be conducted.

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Mersin University Journal of Maritime Faculty

Mersin University Journal of Maritime Faculty (MEUJMAF)
Vol. 3, Issue 2, pp. 37-50, December 2021
ISSN 2687-6612, Turkey
DOI: 10.47512/meujmaf.1018026
Research Article

ANALYSIS OF MARITIME PIRACY BY USING QUALITATIVE METHODS

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Received: 02/11/2021 Accepted: 24/12/2021

ABSTRACT
Nearly 90% of world trade is transported by sea. Maritime piracy is a major threat for maritime security, shippers, crews, cargo owners and insurance companies. Main reasons of piracy and armed robbery attacks, piracy statistics, international conventions, regulation and multinational efforts were examined and maritime piracy against ships are analyzed in the period 2015 to 2020 in the study. The Chi Square Test (χ^2) was used to test statistical relationship between categorical variables such as piracy attacks by years, months and hours, types, regions and type of vessels attacked. The results of the frequeny distributions show that the most piracy attacks occurred in 2015 (20.9%), the most attacks were in March-April-May (30.2%), the most attacks were occured between the hours 24:00-04:00 (29.2%) the most attacks occurred in South East Asia (42.6%), the most type of attacks against to ships were boarded (79.1%), the most attacks were occurred against bulk carriers (28.6), Marshall Islands-flagged ships were the most attacked (17.1%). The results of Chi-Square Test show that there is a weak statistical relationship between the piracy attacks by months and regions; there is a weak statistical relationship between the piracy attacks by years and type of attacks. There is no statistical relationship between other variables. In the conclusion part of the study, some suggestions are proposed to combat the maritime piracy.

Keywords: *Maritime Security; Maritime Piracy; Maritime Trade; Chi-Square Test.*

1. INTRODUCTION

Around 90 percent of global trade by volume carried by sea especially by narrow risky waterway as such as the the Strait of Bab el-Mandeb, Suez and Panama Canals, Malacca or Singapore Straits (UNCTAD, 2018). Maritime pirates attack particularly main trade routes especially narrow waterways and straits. The maritime piracy (piracy) is a great threat for the sustainability of seaborne trade The attacks against ships negatively affect international trade, exporters, importers, crews, ship owners, shippers, container operators, insurance companies, maritime safety and environment (Chew, 2005).

In 2020, 195 pirate attacks were occurred in 2020. The most of the piracy attacks occurred in Nigeria and respectively in Indonesia, Singapore Straits and Benin (IMB, 2020). The highest risky region is Africa with 88 attacks. Other risky regions are South-East Asia, Americas, Indian Sub Continent and East India (IMB, 2020). The Covid-19 pandemic has affected maritime crime. The piracy attacks against ships increased in 2020 during the pandemic period. Violent piracy attacks against ships and their crews have increased espically Nigeria, Indonesia, Singapore Straits and Benin during the Covid-19 period. The Covid-19 pandemic negatively affects the global economy, growth rates, job losses, international trade, powerty (Homeland Security, 2021).

While the reason of most maritime piracy attacks are robs of money, some may be for political or social purposes (Mo, 2002). The main reasons of maritime piracy can be listed as follows: economic crisis in Southeast Asia, low wages, high unemployment rates, poverty and inadequate education, insufficient coastline and port surveillance, regional political and economic instability especially in Somalia, corruption, insufficient judicial structures and loopholes in legal instruments, local law enforcement, demand ransom illegal foreign fishing trawlers, serious damaging of marine ecosystem due to discharging of hazardous wastes such as toxic and chemical along Somalia's coast by foreign ships during the period the civil war in early 1980s in Somalis (Chalk, 2008; Ece, 2012; UNEP, 2005). Piracy attacks increased due to the willingness of shipowners to pay large sums of money for the return of their cargo and ships (Chalk, 2009). The piracy attacks have the potential threat for environment and could cause environmental pollution and damage to maritime life and other offshore resources (Chalk, 1998).

Several studies have been carried out on the maritime piracy until today. Chalk (1998) analyzed maritime piracy in the Southeast Asian region. Some of the suggestions of the study are providing assistance by flag states in the form of maritime funds, training, and equipment, creation of effective multilateral joint patrol areas in the Southeast Asia (Chalk, 1998). Nincic (2009) discussed in maritime piracy in Africa from the point of the humanitarian dimension. As a result of the study, it is emphasized that piracy attacks poses a vital threat for fishing industry, regional trade, economy, living conditions of the poor people who live in this region (Nincic, 2009).

Pristrom *et al.* (2013) analyzed maritime piracy attacks to find the factors that cause piracy. One of the results of the analysis shows that the threat of maritime piracy can be mitigate by a number of shipboard measures. Okoronkwo et. all. (2014) discussed maritime piracy in Niigeria. Martínez-Zarzoso and Bensassı (2013) investigated impact of piracy on maritime transport costs The results of the study show that maritime piracy significantly increases trade costs between Europe and Asia.

Flückiger and Ludwig (2015) analyzed the link between economic shocks in the fisheries sector and the incidence of piracy. The findings of the analysis that plankton abundance is positively concerning fish catches, but negatively associated with the piracy attacks. Some suggestions of the study are sanitization of the countries' political process, strengthening building capacities in security agencies in Nigerian waterways and strengthening security operations and intelligence gathering concerning maritime security. Özdemir and Güneroğlu (2017) analyzed piracy attacks by using applying fuzzy AHP and fuzzy TOPSIS methodologies. One of the results of the study is that economic insufficiency is the most effective cause of the maritime piracy. One of the sugesstions of this study is that local and regional authority in risky regions should be supported. The use of private armed guards onboard ships has increased due to the growing maritime piracy (Ahmad, 2020). The International Maritime Organization (IMO) is issuing guidelines on the use of private armed guards to protect ships from piracy (IMO, 2021a). Shepardi and Pratson (2020).has analyzed the effect of maritime piracy through this chokepoint on exports of specific fuels from each Persian Gulf Countries (PGC) by using use a two-stage least squares regression. The result of the analysis indicates that tanker transit declines two years after piracy attacks in PGC region and only refined petroleum exports from Bahrain and Kuwait are significantly impacted. Using data on attacks on ships reported between 1996 and 2005, Majia *et al.* inquired whether the acts of piracy were truly random. The results of the study show that both type of vessel and flag of registry are significant factors maritime piracy and the ship types most subject to attacks are bulk carriers followed by general cargo ships, container ships, tankers, chemical and products carriers (Mejia et all, 2009).

Due to the limited number of studies on the quantitative analysis of maritime piracy in the literature,
this study is designed to fill this gap. The aim of the study is to analyze maritime piracy attacks between 2015 to 2020 by using quantative methods such ~~as~~ frequency distribution, the Chi Square Test (χ^2) and Cramer V's Test. The reason for using the Chi-Square Test is that the variables are categorical and to determine if observed results are in line with expected results.

The paper is organized in five sections. In the introduction part of the study, a literature review on piracy was conducted and the reasons of piracy were examined. In the second part of the study, maritime piracy&armed robbery statistics are given. In the third part of the study, international conventions, regulations and efforts to combat maritime piracy are examined. In the fourth part of the study, the frequency distribution was created and the Chi Square Test and Cramer V's Test were used to test whether a statistically relationship between categorical variables. These variables include the piracy attacks by years, months and hours, types, regions and type of vessels attacked. In the conclusion section includes the results of the analysis of the study and some suggestions are proposed to combat the maritime piracy.

2. MARITIME PIRACY&ARMED ROBBERY STATISTICS

In 2020, 195 piracy and armed robbery against ships in the worldwide. Total of 400 attacks occurred in Africa and 466 attacks occurred in South East Asia in 2015-2020 The most attacks occurred in Africa (88) and respectively South East Asia (62), America (30), Indian Subcontinent (10) and East Asia (4) in 2020. The attacks occurred in Africa, South East Asia, Indian Subcontinent and America increased according to the the previous year as given in Table 1 (IMB, 2019; IMB, 2020).

The most attacks occurred in Nigeria (35) and respectively Indonesia (26), Singapore Straits (23), Benin (11), Ghana (9), Peru and Philippines in 2020 as shown in Table 2 (IMB, 2019; IMB, 2020)

Table 1. Actual and attempted piracy attacks by regions

Region	2015	2016	2017	2018	2019	2020
Africa	35	62	57	87	71	88
South East Asia	147	68	76	60	53	62
Indian Subcont	24	17	15	18	4	10
America	8	27	24	29	29	30
East Asia	31	16	4	7	5	4
Rest of World	1	1	4	-	-	1
Total	246	191	180	201	162	195

Source: International Chamber of Commerce (ICC) IMB 2015-2020 Annual Reports

Table 2. Actual and attempted attacks by locations

Location	2015	2016	2017	2018	2019	2020
South East Asia						
Indonesia	108	49	43	36	25	26
Malaysia	13	7	7	11	11	4
Philippines	11	10	22	10	5	8
Singapore Straits	-	2	4	3	12	23
East Asia						
Vietnam	27	9	2	4	2	4
Indian Sub Continent						
Bangladesh	11	3	11	12	-	4
India	13	14	4	6	4	6
South America						
Brazil	-	-	-	4	2	7
Haiti	-	4	1	3	2	5
Mexico	-	1	-	-	1	4
Peru	-	11	2	4	10	8
Africa						
Angola	-	2	1	-	-	6
Benin	-	1	-	5	3	11
Ghana	-	3	1	10	3	9
Guinea	-	3	2	3	2	5
Gulf of Aden	-	1	3	1	-	-
Mozambique	-	1	2	2	3	4
Nigeria	14	36	33	48	35	35
Somalia	-	1	5	2	-	-
Rest of the World	49	44	57	75	68	100
Total	246	191	180	201	162	195

Source: ICC IMB 2015-2020 Annual Reports

The piracy attacks in Bangladesh have decreased significantly in recent years due to the efforts of Bangladesh authorities. Most piracy attacks were occurred Chittagong anhorages and approaches. The attacks have also fallen in Indonesia due to close collaboration between Indonesian Marine Policy and IMB PRC. The attcaks in Malacca

Straits has dropped significantly due to patrols by literal states. Merchant vessels are at ris in Malaysia. Therefore, the ships are advised to take precautionary measures. The piracy attacks have increased in Benin. The pirates/robbers are often well armed, violent in Nigeria. The pirates have attackted and hijacted/robbed ships/kidnapped crews in this location (ICC, 2021).

The piracy statistics by attack type between 2015-2020 are 142 attempted, 923 boarded attacks and 69 fired upon. Attempted and boarded attacks increased and hijack decreased in 2020 according to the previous ysignificantly ear as shown in Table 3 (IMB, 2019; IMB, 2020).

Total of 508 kidnap/ransom and 747 hostage events occurred between 2015-2020 as given in Table 4 (IMB, 2019; IMB, 2020). Kinnap/ransom increased and hostage in decreased in 2020 according to the previous year (IMB, 2019; IMB, 2020).

In 80% of the Gulf of the Guinea attacks, the attacks were armed with guns (IMB, 2020).

Table 3. The type of attacks by years

Type of attacks	2015	2016	2017	2018	2019	2020
Attempted	27	22	22	34	17	20
Boarded	203	150	136	143	130	161
Fired Upon	1	12	16	18	11	11
Hijack	15	7	6	6	4	3
Total	246	191	180	201	162	195

Source: ICC IMB 2015-2020 Annual Reports

Table 4. Types of violence to crew by years

Type of Violance	2015	2016	2017	2018	2019	2020
Assaulted	14	5	6	-	3	5
Hostage	271	151	91	141	59	34
Injured	14	8	6	8	7	9
Kidnap/Ransom	19	62	75	83	134	135
Killed	1	-	3	-	1	-
Threatened	14	10	10	9	6	8
Total	333	236	191	241	210	191

Source: ICC IMB 2015-2020 Annual Reports

Table 5. Types of arms used during attacks January-December 2003-2009

Types of arms	2015	2016	2017	2018	2019	2020
Guns	33	48	52	56	47	69
Knives	97	44	44	36	36	46
Not stated	108	96	80	104	74	76
Other weapons	8	3	4	5	5	4
Total	246	191	180	201	162	195

Source: ICC IMB 2015-2020 Annual Reports

Guns are the most used arms and respectively knives. Total of 69 guns and 46 knives were used in 2020 as shown in Table 5 (IMB, 2019; IMB, 2020).

3. INTERNATIONAL CONVENTIONS, REGULATIONS AND EFFORTS TO COMBAT MARITIME PIRACY

International Maritime Organization (IMO), The European Union (EU) and other related organizations adapted legal and other regulations to combat maritime piracy. The major international conventions, regulations and efforts concerning anti-maritime piracy are can be classified as the following;

a) Geneva Convention on the High Seas 1958

In 1958, the Geneva Convention on the High Seas came into force on 10 June 1964. The Convention set out the first formal definition of piracy (Art 15).

b) The United Nations Convention on the Law of the Sea (UNCLOS) 1982

UNCLOS includes number of provisions related to maritime piracy. The articles 100-107 and 110 set out the principles on anti-piracy. *"Article 100 of the UNCLOS provides that all States to cooperate to the fullest possible extent in the repression of piracy on the high seas or in any other place outside the jurisdiction of any State (UNCLOS, 1982)".*

According to the article 105 of UNCLOS *"On the high seas, or in any other place outside the jurisdiction of any*

State, every State may seize a pirate ship or aircraft, or a ship or aircraft taken by piracy and under the control of pirates, and arrest the persons and seize the property on board (UNCLOS, 1982)". Article 107 of UNCLOS concerns to "*Ships and aircraft which are entitled to seize on account of piracy(UNCLOS, 1982)".*

The definition of the piracy defines in article 101 of UNCLOS as follows (UNCLOS, 1982):

"Piracy consists of any of the following acts:
(a) any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:
(i) on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;
(ii) against a ship, aircraft, persons or property in a place outside the jurisdiction of any State;
(b) any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft;
(c) any act of inciting or of intentionally facilitating an act described in subparagraph (a) or (b) (UNCLOS, 1982)".

c) The Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation 1988 (SUA).

The purpose of the SUA Convention is to ensure that appropriate action is taken against persons who commit unlawful acts against ships in accordance with international law. (Çaycı, 2009). The amendments were adopted in the form of Protocols to the SUA treaties (the 2005 Protocols) (IMO, 2021b).

d) The United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988 (Article 17).

e) The United Nations (UN) Security Council Resolutions 1801 (2008), 1816 (2008), 1838 (2008), 1844 (2008), 1846 (2008), 1851 (2008) and of UN General Assembly Resolution 63/111 which provide recommendations to combat the maritime piracy (Çaycı, 2009).

f) International Maritime Organization (IMO) resolutions and circulars contains recommendations and measures to governments, ship operators, shipowners and crews to cope with the piracy. The International Ship and Port Facility Security (ISPS) Code which came into force on 1 July 2004 was adopted into the International Convention for the Safety of Life at Sea (SOLAS), 1974 to increase maritime security measures for ships and port facilities (IMO, 2021c). The ISPS Code is to ensure that the applicable ocean going of IMO Member States are implementing the highest possible standards of security. The ISPS Code divided into two sections. The Part A is mandatory which a series of guidelines and Part B which is non-mandatory contains how to meet those requirements (IMO, 2015; IMO, 2021d).

g) The Djibouti Code come into force on January 29, 2009 to repress of piracy and armed robbery against ships in the Western Indian Ocean and the Gulf of Aden. The purpose of the Code is to implement and/or reinforce some activities such as establishment of Regional Training Centre and Piracy Information Exchange Centres (IMO, 2013).

h) The European Union (EU) legislation consists in the combination of preventive measures contained in the Regulation on enhancing ship and port facility security. EU) legislation on maritime security are given as follows (ec.europa.eu, 2015).

i) European legislation concerning maritime security such as Ship and port facility security: Regulation (EC) No 725/2004, Port Security Directive, Commission Regulations to enhance ship and port facilities.

j) The Regional Cooperation Agreement on Combating Piracy and Armed Robbery against ships in Asia (RECAAP) set up the RECAAP Information Sharing Centre (ISC) for facilitating the sharing of piracy-related information to combat the piracy (UNCTAD, 2014).

k) Military and naval antipiracy patrols such as NATO Combined Task Forces, NATO's Standing Naval Force Mediterranean (STANAVFORMED) the EU Operation Atalanta and other States's naval forces take measures to secure the high risky areas by escorting commercial vessels (UNCTAD, 2014). The International Recommended Transit Corridor (IRTC) which is a shipping route with 490 nautical miles long and 20 nautical miles wide. through the Gulf of Aden is patrolled against pirates by international naval forces(IMO, 2009).

l) The coastguards, marine police, customs and other government agencies engaged in Southeast Asia countries have taken measures to combat the maritime piracy. All coastal states such as Malaysia, Indonesia, and Singapore have conducted joint naval patrols (Alessi and Hanson, 2012).

m) Maritime security technologies such as Automatic Identification System (AIS), the Long Range Identification and Tracking (LRIT) System have been introduced to help shipowners, ship masters, and crews to combat maritime piracy (Pristrom ***et al,*** 2013,).

n) The Montreux Document on Private Military and Security Companies. The Montreux Document covers Pertinent ınternational legal obligations and good practices for states related to operations of private military and security companies during armed conflict. The Montreux Document which was finalized by consensus on 17 September 2008 by 17 States. The Document has aimed to promote respect for International humanitarian law and human rights law whenever private military and security companies are present in armed conflicts (ICRC, 2020).

o) Best Management Practices for Protection against Somalia Based Piracy offered specific and practical advices to help ships to avoid, deter or delay piracy attacks in the High Risk Areasuch as the Gulf of Aden, off the Coast of Somalia and in the Western Indian Ocean.

As mentioned above, the piracy attacks have decreased significantly due to the measures such as implementation of International Recommended Transit Corridor, Best Management Practices, ship protection measures, maritime security technologies, International Maritime Organization (IMO) resolutions and circulars concerning piracy; the Djibouti Code to mitigate piracy in the Western Indian Ocean and the Gulf of Aden; The Regional Cooperation Agreement on Combating Piracy and Armed Robbery against ships Asia and efforts of anti-piracy operations.

4. METHODOLOGY

The piracy and armed robbery attacks data are obtained from the Piracy and Armed Robbery Incidents statistics of the ICC International Maritime Bureau's "Piracy and Armed Robbery Against Ships" Annual Reports for in the period 2015 and 2020. The piracy and armed robbery attacks data base contains total of 7.050 nonparametric data

which includes 1.175 actual and attempted attacks records such as attacks by years; type of attacks; type of vessels attacked; attacks by regions and locations. The frequency distribution was created and Chi Square and Cramer's Value Tests were used to test statistical relationship between categorical variables such as piracy attacks by years, months and hours, types, regions and type of vessels attacked. The variables have divided sub groups by using the classification scale.

4.1. Frequency Distribution of Piracy Attacks

The most piracy attacks occurred in 2015 (20.9%) between 2015 and 2020 as given in Table 6 and Figure 1. Piracy atacks increased by 20% in 2020 compared with the previous year.

Table 6. Frequency distribution of actual and attempted piracy attacks by years

Attacks by years	Frequency	Percent. (%)	Total Cumulative Percent. (%)
2015	246	20.9	20.9
2016	191	16.3	37.2
2017	180	15.3	52.5
2018	201	17.1	69.6
2019	162	13.8	83.4
2020	195	16.6	100.0
Total	1,175	100.0	

Source: ICC IMB 2015-2020 Annual Reports

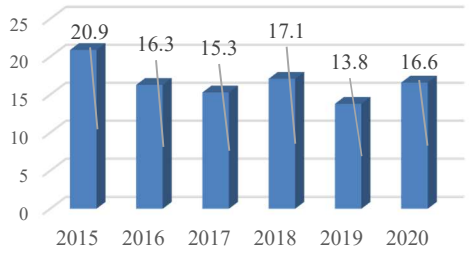

Fig.1. Actual and attempted piracy attacks by years
Source: ICC IMB 2015-2020 Annual Reports

The most attacks occurred in South East Asia (42.6%) and respectively Africa (33.7%), America (12.5%), Indian Subcontinent (7.7%) and East Asia (2.9%) between 2015 and 2020 as given in Table 7 and Figure 2.

Table 7. Frequency distribution of actual and attempted piracy attacks by regions

Attacks by regions	Freq.	Percent. (%)	Total Cum. Percent. (%)
Africa	396	33.7	33.7
South East Asia	500	42.6	76.3
Indian Subcontinent	91	7.7	84.0
America	147	12.5	96.5
East Asia	34	2.9	99.4
Rest of World	7	0.6	100.0
Total	1,175	100.0	

Source: ICC IMB 2015-2020 Annual Reports

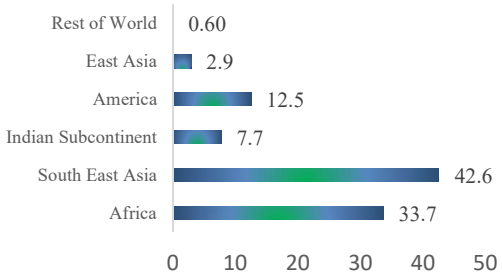

Fig.2. Actual and attempted piracy attacks by regions
Source: ICC IMB 2015-2020 Annual Reports

The most attacks were occured in the months in March-April-May (30.2%) and respectively Dec-Jan- Feb (24.9%), Sep-Oct-Nov (24.6%) and June-July-Aug (20.3%) between 2015 and 2020 as given in Table 8.

Table 8. Frequency distribution of actual and attempted piracy attacks by months of attacks

Months of attacks	Freq.	Percent. (%)	Total Cumulative Percent. (%)
Dec-Jan-Feb	293	24.9	24.9
March-April-May	355	30.2	55.1
June-July-Aug	238	20.3	75.4
Sep-Oct-Nov	289	24.6	100.0
Total	1,175	100.0	

Source: ICC IMB 2015-2020 Annual Reports

The most attaks were occured between the hours 24:00-04:00 (29.2%) and respectively 04:00-08:00 (20.7%), 20:00-24:00 (16.3%), 16:00-20:00 ((15.3%), 12:00-16:00 (8.7%) and 08:00-12:00 (8%) between 2015 and 2020 as given in Table 9.

Table 9. Frequency distribution of actual and attempted piracy attacks by hours of attacks

Hours of attacks	Freq.	Percent. (%)	Total Cum. Per. (%)
NA	22	1.9	1.9
24:00 - 04:00	343	29.2	31.1
04:01 - 08:00	243	20.7	51.7
08:01 - 12:00	94	8.0	59.7
12:01 - 16:00	102	8.7	68.4
16:01 - 20:00	180	15.3	83.7
20:01 - 24:00	191	16.3	100.0
Total	1,175	100.0	

Source: ICC IMB 2015-2020 Annual Reports

929 ships were boarded (79.1%) and respectively attempted (12%), fired upon (5.8%) and hijack (3.1%) in the period of 2015-2020 as given in Table 10.

Table 10. Frequency distribution of type of piracy attacks

Type of attacks	Freq.	Percent. (%)	Total Cumulative Percent. (%)
Attempted	141	12.0	12.0
Fired upon	68	5.8	17.8
Hijack	37	3.1	20.9
Boarded	929	79.1	100.0
Total	1,175	100.0	

Source: ICC IMB 2015-2020 Annual Reports

Bulk carrier ships were the most attacked (28.6%) and respectively product tankers (21.0%), container ships (10.2%) in the period of 2015-2020 as given in Table 11. The results of the descriptive statistics of the study conducted by Mejia *et al* (2009) also show that the ship types most subject to attacks are bulk carriers (Mejia et all, 2009).

Table 11. Actual and attempted piracy attacks by type of ships attacked

Type of ships attacked	Freq.	Percent (%)	Cumulative Percent (%)
Fishing ship	18	1.5	1.5
General cargo	65	5.5	7.1
Bulk carrier	336	28.6	35.7
Container	120	10.2	45.9
Tanker	99	8.4	54.3
Chemical tanker	54	4.6	58.9
Product tanker	247	21.0	79.9
LPG tanker	50	4.3	84.2
Refrigerated vessel	17	1.4	85.6
Vehicle carrier	7	0.6	86.2
Yacht	1	.1	86.3
Tug	42	3.6	89.9
Others	119	10.1	100.0
Total	1,175	100.0	

Source: ICC IMB 2015-2020 Annual Reports

Marshall Islands -flagged ships were the most attacked (17.1%) and respectively Panama-flagged ships(15.1%), Singapore-flagged ships ((14.2%) and Liberia-flagged ships (11.5%), Singapore-flagged ships ((14.2%) and Liberia-flagged ships (11.5%) as given in Table 12.

Table 12. Actual and attempted piracy attacks by ship's flag attacked

Ship's flag attacked	Freq.	Percent (%)	Cumul Perc..(%)
NA	8	0.7	0.7
Europe (Exc.Malta)	7	0.6	1.3
Malta	42	3.6	4.9
USA/Cont America	3	0.3	5.1
Hong Kong	68	5.8	10.9
Marshall Islands	201	17.1	28.0
Antigua&Barbuda	14	1.2	29.2
Singapore	167	14.2	43.4
Panama	178	15.1	58.6
Liberia	135	11.5	70.0
Malaysia	35	3.0	73.0
Indonesia	21	1.8	74.8
Others	296	25.2	100.0
Total	1,175	100.0	

Source: ICC IMB 2015-2020 Annual Reports

4.2. Chi-Square Test

In the study, Chi-Square Test (χ^2) which is a quantative measure was used to analyze whether a relationship exists between the non parametric variables for the period in 2015-2020. The reason for using the Chi-Square Test is that the variables are categorical and to determine if observed results are in line with expected results. The significance level (α) was set at 5%.

It was tested a hypothesis H_0 that fully specifies p^1,….., pk,

$H_0 : p_1 = p_1^{(0)}, ; p_2 = p_2^{(0)}, \ldots\ldots\ldots\ldots, p_k = p_k^{(0)},$

The formula for the χ^2 test statistic is:

$$\chi^2 = \sum_{i=1}^{k} \frac{(Observedvalue - Expectedvalue)^2}{Expectedvalue} \quad (1)$$

We can safely use the Chi-Square Test when the samples are simple random samples; all individual expected counts should be 1; no more than 20% of expected counts are less than 5; the minimum expected count is at least equal to 1. The P-value which is the probability of observing a sample statistic should also less than the significance level at 0.05 (Cochran, 1954: 417-451; Sheskin, D.J, 2004). Cramer's V Test was used to determine the strength of the relationship between two variables.

4.2.1. The Chi-Square Test between year of attack and region of attack

Total of 1,175 piracy attacks occured during the period 2015 to 2020. Most of the attacks occurred in 2015 (246

attacks). The least number of attacks occurred in 2019 (162 attacks) as given in Table 13. The most of the attacks in Africa were occurred in 2020 (85) and respectively in Sout East Asia (177) in 2015, Indian Sub Continent in 2015 and 2017 (20) and Far East in 2016 (15) as shown in Table 13 (IMB ICC, 2015-2020).

The piracy attacks in all regions increased in 2020 except Far East. The piracy attacks increased by 24% as of May 15 in 2020 compared with the same period in 2019 (Oyenug, 2021).

The null hypotheses (H_0): There is no statistical relationship between year of attack and region of attack and the alternative hypotheses (H_1): There is statistical relationship between year of attack and region of attack

The value of χ^2 Test is 174.803, 19.4% of expected counts < 5, P-value (0.00) < the significance level (α=0.05), but minimum expected count < 1 (0.97) as shown in Table 14. Therefore, the χ^2 Test can not be used safely.

4.2.2. The Chi-Square Test between month of attack and region of attack

The most of the attacks occured in Africa (111), South Asia (158) and Americas (47) were occurred in March-May and respectively Indian Sub-Continent (44) and Far East (15) in December-February in the period 2015 to 2020 as shown in Table 15 (IMB ICC, 2015-2020).

H_0: There is no statistical relationship between month of attack and region of attack and H_1: There is statistical relationship between month of attack and region of attack.

Table 13. Crosstabulation between year of attack and region of attack (2015-2020)

Years	Count % within attacks by years	Africa	South East Asia	Indian Sub Cont.	Americas	Far East	Others	Total
2015	Count	35	177	20	8	5	1	246
	Expected Count	82.9	104.7	19.1	30.8	7.1	1.5	246.0
	%wit.attack year	14.2%	72.0%	8.1%	3.3%	2.0%	.4%	100.0%
2016	Count	62	69	17	27	15	1	191
	Expec. Count	64.4	81.3	14.8	23.9	5.5	1.1	191.0
	%wit.attack year	32.5%	36.1%	8.9%	14.1%	7.9%	0.5%	100.0%
2017	Count	56	74	20	24	2	4	180
	Expec. Count	60.7	76.6	13.9	22.5	5.2	1.1	180.0
	%wit.attack year	31.1%	41.1%	11.1%	13.3%	1.1%	2.2%	100.0%
2018	Count	87	63	19	29	3	0	201
	Expec. Count	67.7	85.5	15.6	25.1	5.8	1.2	201.0
	%wit.attack year	43.3%	31.3%	9.5%	14.4%	1.5%	0.0%	100.0%
2019	Count	71	53	4	29	5	0	162
	Expec. Count	54.6	68.9	12.5	20.3	4.7	1.0	162.0
	%wit.attack year	43.8%	32.7%	2.5%	17.9%	3.1%	0.0%	100.0%
2020	Count	85	64	11	30	4	1	195
	Expec. Count	65.7	83.0	15.1	24.4	5.6	1.2	195.0
	%wit.attack year	43.6%	32.8%	5.6%	15.4%	2.1%	.5%	100.0%
Total	Count	396	500	91	147	34	7	1175
	Expec. Count	396.0	500.0	91.0	147.0	34.0	7.0	1,175.0
	%wit.attack year	33.7%	42.6%	7.7%	12.5%	2.9%	.6%	100.0%

Table 14. The Chi-Square Test between year of attack and region of attack (2015-2020)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	174.803[a]	25	0.000
Likelihood Ratio	177.035	25	0.000
Linear-by-Linear Relationship	3.377	1	0.066
Cramer's V (Approx. Sig.)	0.172		0.000
Number of Valid Cases	1,175		

a. 7 cells (19.4%) have expected count less than 5. The minimum expected count is 0.97.

Table 15. Crosstabulation between month of attack and region of attack (2015-2020)

Months	Count/ Expected Count %within attack months	Africa	South East Asia	Indian Sub Cont.	Americas	Far East	Others	Total
December-February	Count	111	90	44	32	15	1	293
	Expect. Count	98.7	124.7	22.7	36.7	8.5	1.7	293.0
	%wit. attac. months	37.9%	30.7%	15.0%	10.9%	5.1%	.3%	100.0%
March - May	Count	121	158	17	47	9	3	355
	Expect. Count	119.6	151.1	27.5	44.4	10.3	2.1	355.0
	%wit. attac. months	34.1%	44.5%	4.8%	13.2%	2.5%	.8%	100.0%
June - August	Count	66	119	15	33	4	1	238
	Expect. Count	80.2	101.3	18.4	29.8	6.9	1.4	238.0
	%wit. attac. months	27.7%	50.0%	6.3%	13.9%	1.7%	.4%	100.0%
September-November	Count	98	133	15	35	6	2	289
	Expect. Count	97.4	123.0	22.4	36.2	8.4	1.7	289.0
	%wit. attac. months	33.9%	46.0%	5.2%	12.1%	2.1%	0.7%	100.0%
Total	Count	396	500	91	147	34	7	1,175
	Expect. Count	396.0	500.0	91.0	147.0	34.0	7.0	1,175.0
	%wit. attac. months	33.7%	42.6%	7.7%	12.5%	2.9%	0.6%	100.0%

Table 16. The Chi-Square Test between month of attack and region of attack (2015-2020)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	54.065[a]	15	0.000
Likelihood Ratio	51.066	15	0.000
Linear-by-Linear Relationship	0.960	1	0.327
Cramer's V (Approx. Sig.)	0.124		0.000
Number of Valid Cases	1,175		

a. 4 cells (16.7%) have expected count less than 5. The minimum expected count is 1.42.

The value of χ^2=54.065, P=0.000, Likelihood Ratio =51.006, 4 cells (16.7%) have expected count < 5. The minimum expected count is 1.42, 16.7% of expected counts are less than 5 as given in Table 16. The minimum expected count is more than 1 (1,42). P value (0.00) < α = 0.05. Therefore, H_0 is rejected, H_1 is accepted. There is statistical relationship between month of attack and region of attack. Cramer's V value (12.4%) confirms that there is a weak statistical relationship between month of attack and region of attack.

4.2.3. The Chi-Square Test between hour of attack and region of attack

The piracy attacks in Africa, Indian Sub Continent, Americas and Far East were occured between the hours 24:00-04:00. The most attacks in South Asia were occured between the hours 16:00-20:00 in the period 2015 to 2020 as given in Table 17 (IMB ICC, 2015-2020).

H_0: There is no statistical relationship between hour of attack and region of attack and H_1: There is statistical relationship between hour of attack and region of attack.

Table 18. Chi-Square Test between hour of attack and region of attack (2015-2020)

	Value	df	Asymp. (2-sided)
Pearson Chi-Square	175.992[a]	30	0.000
Likelihood Ratio	182.454	30	0.000
Linear-by-Linear Relationship	0.370	1	0.543
Cramer's V (Approx. Sig.)	0.173		0.000
Number of Valid Cases	1,175		

a. 12 cells (28.6%) have expected count less than 5. The minimum expected count is 0.13.

The value of χ^2 = 175.992, Likelihood Ratio = 182.454, 28.6% of expected counts < 5, P-value (0.00) < α = 0.05, but minimum expected count < 1 (0.13) as shown in Table 18. Therefore, the χ^2 Test can not be used safely.

4.2.4. The Chi-Square Test between year of attack and types of attack

The most attempted and fired upon occurred in 2018. The most ships hijacked and boarded occurred in 2015 as shown in Table 19. The attacks decreased significantly due to anti-piracy measures and anti- operations (IMB ICC, 2015-2020).

H_0: There is no statistical relationship between year of attack and types of attack, H_1: There is statistical relationship between year of attack and types of attack.

Table 17. Crosstabulation between hour of attack and region of attack (2015-2020)

Hours	Count/ Expected Count//% within attack hour	Africa	South East Asia	Indian Sub Cont.	Americas	Far East	Others	Total
NA	Count	8	10	2	1	1	0	22
	Expect. Count	7.4	9.4	1.7	2.8	.6	0.1	22.0
	%wit.attac. hour	36.4%	45.5%	9.1%	4.5%	4.5%	0.0%	100.0%
2400 - 0400	Count	153	106	26	46	12	0	343
	Expect. Count	115.6	146.0	26.6	42.9	9.9	2.0	343.0
	%wit.attac. hour	44.6%	30.9%	7.6%	13.4%	3.5%	0.0%	100.0%
0400 - 0800	Count	76	81	13	67	3	3	243
	Expect. Count	81.9	103.4	18.8	30.4	7.0	1.4	243.0
	%wit.attac. hour	31.3%	33.3%	5.3%	27.6%	1.2%	1.2%	100.0%
08:01 - 12:00	Count	42	32	3	16	1	0	94
	Expect. Count	31.7	40.0	7.3	11.8	2.7	0.6	94.0
	%wit.attac. hour	44.7%	34.0%	3.2%	17.0%	1.1%	0.0%	100.0%
1200 - 1600	Count	25	56	12	4	5	0	102
	Expect. Count	34.4	43.4	7.9	12.8	3.0	0.6	102.0
	%wit.attac. hour	24.5%	54.9%	11.8%	3.9%	4.9%	.0%	100.0%
1600 - 2000	Count	35	114	17	3	9	2	180
	Expect. Count	60.7	76.6	13.9	22.5	5.2	1.1	180.0
	%wit.attac. hour	19.4%	63.3%	9.4%	1.7%	5.0%	1.1%	100.0%
2000 - 2400	Count	57	101	18	10	3	2	191
	Expect. Count	64.4	81.3	14.8	23.9	5.5	1.1	191.0
	%wit.attac. hour	29.8%	52.9%	9.4%	5.2%	1.6%	1.0%	100.0%
Total	Count	396	500	91	147	34	7	1,175
	Expect. Count	396.0	500.0	91.0	147.0	34.0	7.0	1,175.0
	%wit.attac. hour	33.7%	42.6%	7.7%	12.5%	2.9%	0.6%	100.0%

Table 19. Crosstabulation between year of attack and types of attack (2015-2020)

Years	Count % within attack year	Attempted	Fired upon	Hijack	Boarded	Total
2015	Count	28	1	14	203	246
	Expec.Count	29.5	14.2	7.7	194.5	246.0
	%wit. attack year	11.4%	.4%	5.7%	82.5%	100.0%
2016	Count	23	11	7	150	191
	Expec.Count	22.9	11.1	6.0	151.0	191.0
	%wit. attack year	12.0%	5.8%	3.7%	78.5%	100.0%
2017	Count	22	16	4	138	180
	Expec.Count	21.6	10.4	5.7	142.3	180.0
	%wit. attack year	12.2%	8.9%	2.2%	76.7%	100.0%
2018	Count	33	18	5	145	201
	Expec.Count	24.1	11.6	6.3	158.9	201.0
	%wit. attack year	16.4%	9.0%	2.5%	72.1%	100.0%
2019	Count	17	11	4	130	162
	Expec.Count	19.4	9.4	5.1	128.1	162.0
	%wit. attack year	10.5%	6.8%	2.5%	80.2%	100.0%
2020	Count	18	11	3	163	195
	Expec.Count	23.4	11.3	6.1	154.2	195.0
	%wit. attack year	9.2%	5.6%	1.5%	83.6%	100.0%
Total	Count	141	68	37	929	1,175
	Expec.Count	141.0	68.0	37.0	929.0	1,175.0
	%wit. attack year	1.,0%	5.8%	3.1%	79.1%	100.0%

Table 20. Chi-Square Test between year of attack and types of attack (2015-2020)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.068[a]	15	0.003
Likelihood Ratio	41.267	15	0.000
Linear-by-Linear Relationship	0.068	1	0.794
Cramer's V (Approx. Sig.)	0.098		0.003
Number of Valid Cases	1,175		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.10.

The value of χ^2=34.068, P=0.003, Likelihood Ratio=41.267, 0 cells (0.0%) have expected count< 5. The minimum expected count is 5.10. P= 0.00 < α = 0.05 as given in Table 20. Therefore, H_0 is rejected, H_1 is accepted. There is statistical relationship between year of attack and types of attack. Cramer's V value (9.8%) confirms that there is a weak statistical relationship between year of attack and types of attack (IMB ICC, 2015-2020).

4.2.5. The Chi-Square Test between type of ships attacked and types of attack

The most attempted attacks occurred against tankers (59) and respectively general cargo ships (47). The most fired upon attacks occurred against tankers (41) and respectively general cargo (14). The most hijacked against tankers (20). and respectively general cargo ships (7). The most boarded against general cargo ships (350). and respectively tankers 329) as given in Table 21 (IMB ICC, 2015-2020).

Table 21. Crosstabulation between type of ships attacked and types of attack (2015-2020)

Type of ships	Count % within type of ships attacked	Attempted	Fired upon	Hijack	Boarded	Total
General Cargo	Count	47	14	7	350	418
	Expec.Count	50.2	24.2	13.2	330.3	418.0
	%wit.type of ships attac.	11.2%	3.3%	1.7%	83.7%	100.0%
Container	Count	16	8	0	95	119
	Expec.Count	14.3	6.9	3.8	94.0	119.0
	%wit.type of ships attac.	13.4%	6.7%	.0%	79.8%	100.0%
Tanker	Count	59	41	20	329	449
	Expec.Count	54.0	26.0	14.2	354.8	449.0
	%wit.type of ships attac.	13.1%	9.1%	4.5%	73.3%	100.0%
Vehicle	Count	1	1	0	5	7
	Expec.Count	0.8	0.4	0.2	5.5	7.0
	%wit.type of ships attac.	14.3%	14.3%	0.0%	71.4%	100.0%
Others	Count	18	4	10	148	180
	Expec.Count	21.6	10.4	5.7	142.3	180.0
	%wit.type of ships attac.	10.0%	2.2%	5.6%	82.2%	100.0%
Total	Count	141	68	37	927	1,173
	Expec.Count	141.0	68.0	37.0	927.0	1,173.0
	%wit. attack year	12.0%	5.8%	3.2%	79.0%	100.0%

Table 22. Chi-Square Test between type of ships attacked and types of attack (2015-2020)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.382[a]	12	0.000
Likelihood Ratio	39.568	12	0.000
Linear-by-Linear Relationship	0.417	1	0.518
Cramer's V (Approx. Sig.)	0.100		0.000
Number of Valid Cases	1,175		

a. 4 cells (20.0%) have expected count less than 5. The minimum expected count is 0.22.

The χ^2) value=35,382, Likelihood Ratio = 39.568, 20% of expected counts < 5, P-value (0.00) < α = 0.05,. but minimum expected count (0.22) < 1 . as shown in Table 22 Therefore, the Chi Square Test can not be used safely.

4.2.6. The Chi-Square Test between types of attack and region of attack

The most attacks in Africa, South East Asia, Indian Sub Continent, Americas and Far East were occurred boarded in the period between 2015 to 2020 as shown in Table 23.

Table 23. Crosstabulation between types of attack and region of attack (2015 - 2020)

Type of attacks	Count % within type of attacks	Africa	South East Asia	Indian Sub Cont.	Americas	Far East	Others	Total
Attempted	Count	58	53	8	18	4	0	141
	Expec.Count	47.5	60.0	10.9	17.6	4.1	.8	141.0
	%wit. attack types	41.1%	37.6%	5.7%	12.8%	2.8%	.0%	100.0%
Fired Upon	Count	56	4	0	3	0	5	68
	Expec.Count	22.9	28.9	5.3	8.5	2.0	.4	68.0
	%wit. attack types	82.4%	5.9%	0.0%	4.4%	0.0%	7.4%	100.0%
Hijack	Count	19	18	0	0	0	0	37
	Expec.Count	12.5	15.7	2.9	4.6	1.1	.2	37.0
	%wit. attack types	51.4%	48.6%	0.0%	0.0%	0.0%	0.0%	100.0%
Boarded	Count	263	425	83	126	30	2	929
	Expec.Count	313.1	395.3	71.9	116.2	26.9	5.5	929.0
	%wit. attack types	28.3%	45.7%	8.9%	13.6%	3.2%	0.2%	100.0%
Total	Count	396	500	91	147	34	7	1175
	Expec.Count	396.0	500.0	91.0	147.0	34.0	7.0	1175.0
	%wit. attack types	33.7%	42.6%	7.7%	12.5%	2.9%	.6%	100.0%

Table 24. Chi-Square Test between types of attack and region of attack (2015-2020)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	164.830[a]	15	0.000
Likelihood Ratio	145.912	15	0.000
Linear-by-Linear Relationship	13.130	1	0.000
Cramer's V (Approx. Sig.)	0.216		0.000
Number of Valid Cases	1,175		

a. 8 cells (33.3%) have expected count less than 5. The minimum expected count is 0.22.

The value of χ^2 is 164.830, Likelihood Ratio= 145.912, 33.3% of expected counts < 5, P-value (0.00)< $\alpha = 0.05$, but minimum expected count< 1 (0.22 as shown in Table 24 Therefore, the Chi Square Test can not be used safely.

5. CONCLUSION

Maritime piracy is an international crime which is subject to universal jurisdiction. Piracy attacks increased in all regions especiallay in Africa and Sout East Asia except Far East. Piracy attacks negatively affect ship owners, exporters, carriers and insurance firms. The piracy attacks may also pose a risk for environment and marine life. This study which used quantitative approaaches aims to shed light on the studies concerning the maritime piracy attacks over all the world.

The results of the frequeny distributions can be summarized as the following; The most piracy attacks occurred in 2015 (20.9%), the most attacks occurred in South East Asia (42.6%), the most type of attacks against to ships were boarded (79.1%), the most attecks were occured in the months in March-April-May (30.2%), the most attecks were occured between the hours 24:00-04:00 (29.2%), the most attacks were occurred against bulk carriers (28.6%). Marshall Islands -flagged ships were the most attacked (17.1%). The most of the attacks in Africa were occurred in 2020. The most of th attacks in Africa, South Asia and Americas were occurred in March-May. The piracy attacks in Africa, Indian Sub Continent, Americas and Far East were occured between the hours 24:00-04:00. The most attempted and fired upon were occurred in 2018. The most hijacked and boarded were occurred in 2015. The results of Chi-SquareTest show that there is a weak statistical relationship between the piracy attacks by months and the piracy attacks by regions; there is a weak statistical relationship between the piracy attacks by years and type of attacks. There is no statistical relationship between other variables.

Some suggestions are proposed to combat the maritime piracy as the following; Effective coast and port surveillance; creation of crisis management; ship protection measures including physical barriers, enhanced bridge protection and vigilance; ship security plans; close collaboration, joint surveillance and patrol between states in risky regions; training of port and coastline personnel; technical collaboration for the implementation of IMO conventions; effective information gathering and sharing regarding piracy attacks; tracking of financial flows related to pirates; sustainable international efforts to depress piracy attacks; strengthen legal instruments for instituting legal proceedings against pirates.

It is believed that the results of the study can be beneficial academic studies on this field, maritime sector and the decision making on piracy measures taken by the related organizations.

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Mersin University Journal of Maritime Faculty

Mersin University Journal of Maritime Faculty (MEUJMAF)
Vol. 3, Issue 2, pp. 51-56, December 2021
ISSN 2687-6612, Turkey
DOI: 10.47512/meujmaf.1038376
Research Article

EXPORT DIVERSIFICATION IN TERMS OF COUNTRIES AND PRODUCTS: AN ASSESSMENT OF MERSIN PROVINCE IN TURKEY

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Received: 18/12/2021 Accepted: 29/12/2021

ABSTRACT
While the globalization process makes the world a big market without borders, it offers important opportunities to the economies. On the other hand, it increases the risk of fragility for economies that cannot manage the process properly. If the export mix is dependent on a small number of products and markets, the balance of the economy may deteriorate when there is a problem specific to these products or markets. In this direction, it is aimed to reduce the economic and political risks that may arise from being dependent on several products or markets with diversification in exports. Of course, first of all, it is necessary to determine whether such a situation exists or not. In this study, the product and market concentration level in the export of Mersin province in Turkey was determined by using the Concentration Ratio and the Gini-Hirschman Index. The findings showed that the product concentration in Mersin province exports is at the highest level and the country concentration is at the medium level. It has been observed that the concentration, which had an increasing trend between 2011 and 2014 in both product and country concentration, showed a decreasing trend in the 2014-2020 period. In the agricultural sector, which accounts for more than half of Mersin's exports, the option of increasing product diversity by turning to processed agricultural products and diversifying the market with geographical indications, branding and innovative products should be considered.

Keywords: *Export, Concentration Ratio, Gini-Hirschman Index, Mersin, Turkey*

1. INTRODUCTION

Globalization has left its mark especially in the last fifty yerars with its effect in economic, political and social fields. With the increasing economic integration and relations as a result of globalization, international trade is also developing (Metin and Akcan, 2017: 257). Turkey has also taken its share from globalization. Especially as a result of the export-based and foreign-open policy implemented since January 24, 1980, Turkey's foreign trade volume has increased in the following years (Erdoğan, 2006: 32). According to the official data of the Turkish Statistical Institute for the year 2020, Turkey is in a position that she can export from all 81 provinces, with a large number of product groups and to almost all countries in the world. However, it will be useful to look at the data in more detail to understand how healthy the export profile is. Because, in the details of export data, it can be observed that only a few of the countries and product groups are concentrated. In this case, fluctuations occur in export earnings as a result of fluctuations in the prices of products and contractions that may occur in foreign demand. However, it is possible to have a more stable structure with an export profile where there is diversity in terms of country and sector (Meilak, 2008: 35). Macbean & Nguyen (1980), in their study investigated the stability of export earnings, touched on the debate in the literature and stated that diversification is not the only factor in guaranteeing export earnings, it should be evaluated on its own, and the same result should not be expected in all circumstances. This is valid for a country, region or even a firm's exports to have a more stable structure. For this reason, it would be more beneficial to study for each case rather than a general evaluation.

In this context, the aim of the study is to examine the country and product diversity in exports in terms of Mersin province, which has an important place in the Turkish economy. The level of diversification of Mersin province exports according to products and countries was calculated with the help of Concentration Ratio (CRm) and Gini-Hirschman Index (GHI). In the study, after the introduction, the concept of diversification in exports and the literature related to the field are given in the second part, the method and data set in the third part, the findings in the fourth part, and the results and recommendations in the fifth part.

2. CONCEPTUAL FRAMEWORK

The increasing importance of international trade with globalization has increased the desire of economies to export. At this point, what should be done in order for the economies to have a healthy and stable export profile has been the subject of discussion. Product and market diversity and density in exports stands out as one of the topics discussed and researched in this context. In this section, the concept of product and market diversification in exports and the related literature will be given.

2.1. Product and Market Diversification in Export

Exports remain one of the few channels that contribute to higher per capita income growth in the long run, especially for emerging economies. While exports are so important, research on the healthy profile of exports is always ongoing. This profile is also associated with export diversification. Michealy (1958), one of the leading researchers in the field, found that countries that diversified their exports more were in a better position in terms of per capita income. Wilhelms (1967), Al-Marhubi (2000), Herzer and Novak (2006), Parteka and Tamberi (2008), Cadot et al. (2011) determined the positive effect of export diversification on economic growth in their research on different economies. Many countries that do not diversify their exports and display a narrow basket of products and markets suffer from export instability, often driven by inelastic and global demand. Export diversification is a way to alleviate this situation and have a healthier export profile (Hesse, 2009: 55).

Diversification in exports is the change in the product mix of a firm, region or country or in the number of markets it exports to (Siegel vd., 1991:7). Export diversification can take the form of product and market diversification (Pacheco and Pierola, 2008: 4). Product diversification is divided into two as horizontal and vertical. While horizontal diversification is in the form of increasing the scale or quantity of products at the same production stage, in vertical diversification, products at different stages of the production process are exported (Wilhelms, 1967: 46).

Export diversity can be analyzed at many different levels like firm, country and regional effects (Siegel vd., 1991: 8). Analysis of the effects of export diversification assists in the design and implementation of export diversification policies.

2.2. Literature

In the literature, export diversity can be handled individually or together at firm, regional and country levels, specific to product and market. Table 1 presents some of these studies that are most closely related to the subject of the study.

The studies given in Table 1 also show that the concentration analysis is a widely used analysis that gives important results both in determining the market structure and competitiveness, and in examining country and product-based changes. In this study, the concentration level of Mersin province, which has a significant share in Turkey's foreign trade, on the basis of product and country, has been examined.

3. DATA SET AND METHOD

Various methods such as Concentration Ratio Analysis (CRm), Entropy Index, Gini-Hirschman Index, Theil Entropy Index, Herfindahl-Hirschman Index, Hall-Tidemann index are used to measure product and market diversity (Şen, 2021: 148). Concentration Ratio Analysis (CRm) and Gini-Hirchsman Index will be used in this study. These analyzes are frequently used in the literature due to their ease of application. Concentration rate is a concept that reveals the total shares of a certain number of companies, products, sections (sectors) or countries and is calculated with the help of the formula given below (De Vany and Kim, 2003: 4).

$$CRm = \sum_{i=1}^{m} Pi * 100$$

Although m can take a value between 0 and 100, mostly CR4 and CR8 values are used in studies in the literature. In this study, CR4 and CR8 values will be used. In the formula, CRm is the concentration ratio and Pi is the share of the firm, product or country.

Table 1. Literature Research

Author, Year	Scope
Wolf (2000)	For the period 1970-1993, market and product concentration in Malaysia was examined. It has been determined that product concentration is an important variable explaining the imbalance of export revenues.
Cadot et all (2007)	Data for 156 countries were analyzed with the Gini and HHI Index for the period 1988-2006. Export diversification was found to be low in middle-income countries and high in high-income countries.
Kösekahyaoğlu (2007)	The foreign trade of the 1980-2005 period was analyzed on a sectoral and country basis using the Gini-Hirschman concentration index. Especially in the early 1980s, it was concluded that there were significant changes in the product variety of exports.
Hesse (2008)	It has been found that export diversification in developing countries leads to higher growth and, in its absence, causes export instability.
Naude and Rossouw (2008)	The export diversification of South Africa in the 1962-2000 period was analyzed with the HHI index and the Export Distribution Index and it was determined that the diversification in exports was at a low level.
Secer (2008)	With the help of the HHI Index, it was determined that the market concentration in Turkey's hazelnut exports decreased in the 1990-2007 period.
Ayrancı (2009)	Turkey's foreign trade concentration was examined for the period 1996-2004 and the analysis was made using the Herfindahl-Hirschman Index. It was determined that foreign trade concentration showed a decreasing trend in the related period.
Hamid (2010)	Malaysia's exports for the period 1970-2003 were analyzed with the Gini-Hirschman concentration index. A decrease was determined in the product and market concentration coefficients.
Doğan and Kaya (2011)	Concentration analysis was conducted with the concentration ratio (CR) and Herfindahl Index (H-I) in order to reveal the country and chapter-based changes in Turkey's foreign trade after the Customs Union. It has been determined that there is no change in the CR4 ratio in both imports and exports on country basis. On the basis of products, it has been determined that while the share of low-technology group goods in exports has been shifted to medium-high technology group goods, the share of medium-high technology group goods in imports has not decreased.
Kaynak and Ari (2012)	Concentration level in the Turkish automotive sector has been analyzed with the help of Firm Concentration Ratios (CR4 and CR8) and Herfindahl-Hirschman Index. According to CR4, it has been observed that there is a high level of concentration in the domestic passenger and domestic light commercial vehicle sector, and according to CR8, in the domestic light commercial and imported light commercial vehicle sectors.
Çukurova Development Agency, CKA (2014)	The sectoral and country-based concentration level of Mersin exports were analyzed with the Concentration Ratio and Herfindahl Index for the 2002-2012 period. It has been determined that the sectoral concentration in Mersin's exports is higher than the country's concentration, and it has been emphasized that especially the sectoral product diversity should be increased.
Erkan and Sunay (2016)	The level of product and market diversification in Turkey's exports for the period 2000-2014 was determined using the Gini-Hirschman Index and the Trade Concentration Ratio. It has been found that Turkey has realized market and product diversification in its exports in the relevant period.
Yıldız (2018)	The relationship between the export intensity and performance of 192 manufacturing companies traded in Borsa Istanbul between 2005 and 2015 was examined. It has been shown that there is a positive relationship between export intensity and firm performance, but this positive relationship is valid for companies that invest in R&D.
Karadayı (2019)	In the period of 2012-2016, export and import concentration ratios for Denizli, South Aegean (TR32) Region were calculated and market and sectoral concentration situations were evaluated. The study showed that sectoral concentration in foreign trade is higher than market concentration. In addition, information on the sectors and countries with high concentration in the results of the study is also included.
Şen (2021)	Within the scope of the study, the geographical diversity of Gaziantep exports for the period of 2010-2019 was investigated using the Trade Concentration Index and the Hirschman-Herfhindal Index (HHI). In the relevant period, the HHI value of the province decreased by about half, and it was observed that geographical diversity increased. The highest TII values were observed in the Middle East countries.

Concentration Ratios (CRm) are interpreted as follows (Akar ve Ay, 2019: 120);

- If CR4 < 30, low level of concentration
- If 30≤CR4<50, moderate concentration
- If 50≤CR4<70, high degree of concentration
- If CR4≥70, there is a very high degree of concentration.

The Gini-Hirschman Index, on the other hand, is an important concentration criterion used especially in the comparison between periods and is formulated as follows (Erkan ve Sunay, 2016: 1830);

$$GHI = 100 \sqrt{\sum_{i=1}^{n} \left(\frac{X_{it}}{X_t}\right)^2}$$

GHI in the formula; shows index value, Xit; shows country's export of a certain good (i) in period t, Xt; shows the country's total exports in period t. In the same formula, the i symbol can be defined as a country and used for market concentration. The index value takes a value between 0 and 100. If the value is close to 0, it indicates low concentration, if it is close to 100, it indicates high concentration.

Province-based export data for the period 2011-2020 used within the scope of the study were obtained from the website of the Turkish Exporters Assembly. Since the number of sub-sectors in the data set changed as of 2011, 2011 was taken as the starting year and the period 2011-2020 was examined. The data set was created based on the province where the legal headquarters of the companies are located. The data were analyzed with the Concentration Ratio and Gini-Hirschman Index to determine the product and market diversity of Mersin's exports in the relevant period. It is expected that the study will contribute to the literature in terms of addressing the sector and market concentration in Mersin province, as well as creating input for policy makers at the national and local level.

4. FINDINGS

Mersin is one of the largest cities in Turkey, which hosts well-established institutions and organizations in foreign trade and logistics. In addition to having the largest port in Turkey, Mersin also hosts trade institutions with a long history such as Exporters' Associations, Chambers and Exchanges of Commerce. According to the 2020 data of the Turkish Statistical Institute, Mersin has a share of 2.8 billion dollars (1.3%) from Turkey's total imports and 3.2 billion dollars (1.9%) from its exports (TUİK, 2021). According to 2020 data, Mersin is a city with a foreign trade surplus. Agriculture and manufacturing sectors have an important place in the export and import of the city.

The product concentration in the export of Mersin province is presented in Table 2. A high CR value, which means product concentration ratio, means that exports are made from a small number of sectors. The CR4 value, which shows the share of the top four sectors in the province, increased to 77% in 2014, then gradually decreased to 71% in 2020. This ratio indicates a very high degree of product concentration. Likewise, the GHI value has gradually decreased over the years after reaching its highest level in 2014.

Table 2. Product Concentration in Mersin Export

Year	GHI	CR4	CR8
2011	45	71	85
2012	43	71	85
2013	45	73	86
2014	47	77	87
2015	46	75	88
2016	46	74	87
2017	43	72	86
2018	43	70	85
2019	41	68	85
2020	44	71	85

Table 3 shows which sectors receive how much share in Mersin's exports. As can be seen, the fresh fruit and vegetable sector and the cereals, pulses, oilseeds and products sector have a very important share in the province's exports. The share of only two sectors in exports was 59.1% in 2020. The chemical materials and products sector is also the third sector that receives the largest share from the province's exports.

Table 3. Mersin Province Exports by Sector in 2020 ($1,000)

CRi	Sector	Export	Share (%)	CRi Ratio (%)
CR1	Fresh Fruit and Vegetable	671.770	33,0	33,0
CR2	Cereals, Pulses, Oilseeds and Products	530.736	26,1	59,1
CR3	Chemical Substances and Products	147.726	7,3	66,3
CR4	Steel	95.071	4,7	71,0
CR5	Machinery and Parts	92.424	4,5	75,5
CR6	Furniture, Paper and Forest Products	73.721	3,6	79,1
CR7	Fisheries and Animal Products	59.781	2,9	82,1
CR8	Automotive Industry	59.495	2,9	85,0

The market concentration of Mersin exports is presented in Table 4. A high CR value, which means the market concentration ratio, means that exports are made to a small number of countries. The CR4 value, which shows the share of the top four countries with the highest exports from the province, increased to 55% in 2014, then gradually decreased to 37% in 2020. This ratio shows that there is moderate market concentration. Similar to the product concentration, the GHI value, which increased until 2014, decreased gradually from this year.

Table 4. Market Concentration in Mersin Exports

Year	GHI	CR4	CR8
2011	27	44	57
2012	32	48	59
2013	32	49	61
2014	35	55	65
2015	29	47	57
2016	28	44	55
2017	26	42	52
2018	23	36	49
2019	23	38	50
2020	23	37	50

The distribution of exports from the province by country is presented in Table 5 in more detail. According to the table, the first four countries with the largest share in the province's exports are respectively; Russia, Iraq, Syria and Germany.

Table 5. Mersin Province Exports by Country in 2020 ($1,000)

CRi	Country	Export	Share (%)	CRi Ratio (%)
CR1	Russian Federation	290.069	14,2	14,2
CR2	Iraq	281.988	13,9	28,1
CR3	Syria	91.281	4,5	32,6
CR4	Germany	91.263	4,5	37,1
CR5	Ukraine	75.666	3,7	40,8
CR6	Israel	70.835	3,5	44,3
CR7	Egypt	66.705	3,3	47,5
CR8	U.S.A.	51.458	2,5	50,1

5. CONCLUSION

In this study, covering the years 2011-2020, it is aimed to determine the level of product and market diversification in the exports of Mersin, one of the most important foreign trade cities of Turkey, by using the Concentration Ratio and the Gini-Hirschman Index. Reducing the dependency on certain products and markets by spreading to more countries with more diverse products in exports is important in terms of increasing the competitiveness of the provincial economy. It is seen that the sectoral concentration in Mersin's exports is higher than the market concentration. This finding is similar to the study of CKA (2014) on the concentration level of Mersin province exports. Sectoral concentration may not be considered as a negative situation if it is due to real specialization in concentrated sectors and high value-added production (Karadayı, 2019: 246). Mersin has always been an important agricultural city from past to present. In this context, it is usual for the agricultural sector to come to the fore in exports. However, it is possible to increase the product variety and to have a more value-added product range by turning to processed agricultural products, especially in the fresh fruit and vegetable sector, which is the most exported. Focusing more on geographical indications, branding and innovative products is key to value-added production. In this way, not only will the added value increase, but also the potential to access different markets will increase (Pektaş et all., 2018: 74). The agricultural sector, which stands out in the export product range of the province, is prone to be adversely affected by seasonal fluctuations and weather events. On the other hand, the tendency of Russia, Iraq and Syria, which are in the top three in exports, to be affected by international political developments are other issues that increase the importance of branding and innovative products. In this framework, it is recommended that the focus of institutions, both at the national and regional level, be directed more towards studies that prioritize branding, design and innovation, and to be supported with funds. At the same time, it will be beneficial for both universities and researchers in the field to carry out studies that will increase the value-added product range of the sectors with a multidisciplinary approach and thus serve to diversify in exports.

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Mersin University
Journal of Maritime Faculty

Mersin University Journal of Maritime Faculty (MEUJMAF)
Vol. 3, Issue 2, pp. 57-61, December 2021
ISSN 2687-6612, Turkey
DOI: 10.47512/meujmaf.1033848
Research Article

DIMENSIONS OF CUSTOMER RELATIONSHIP MANAGEMENT PRACTICES FROM THE SHIP AGENCY PERSPECTIVE: AN EXPLORATORY STUDY

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Received: 07/12/2021 Accepted: 29/12/2021

ABSTRACT
Customer focus, satisfaction, and value are among the key determinants in establishing customer relationship management. With the effects of increasing competition and negative environmental developments e.g., Covid-19, companies' interests on Customer Relationship Management (CRM) activities have increased. This study explores some dimensions that are frequently used for establishing CRM such as customer focus approach, customer value and customer satisfaction from the ship agency perspective. According to the findings, agencies claim that they frequently have difficulties to achieve customer satisfaction, they adopt many strategies for CRM (e.g., telephone calls, e-mails, offering promotions, visits), they consider hiring staff of sales department carefully, they customized their services for customers, and they challenge competition and gain lower profits because of it. Surveys and feedbacks are frequently used by agencies for evaluating customer satisfaction.

Keywords: *Ship Agencies, Customer Relationship Management, Customer Satisfaction*

1. INTRODUCTION

With the changing nature of today's economy, final consumers are now having a wide variety of household products in their purchase decisions. This abundance of choice made the competition fiercer and urges both manufacturers and intermediaries to deliver the product at the right time, right quality, and the right price. As we know that sea transportation handles more than three quarters of the worldwide cargo movement, the speed, quality, and cost of sea transport become critical.

From a maritime perspective over 15 major types of partners are strongly involved in maritime procedures and although there is enormous volume of information (structured and unstructured) been transferred, only in specific cases vertical or horizontal collaboration exists (Keradinidis *et al*., 2012). In this highly complicated market shipowners need successful mediators to conduct business relationships and fix ordinary problems. Ship agencies can play as mediators.

A shipping agency can be defined as the business rendering delivering shipping services in the name of the shipowner with the right and obligations for each party specified and signed by the involved parties in the so-called agency agreement (Moshi, 2000: 5). In this business, ship (port) agencies are conducting those services. A ship agent is a person or firm who transacts all business in the name of and under the direction of a ship owner or charterer. The ship agent is generally considered as the organizer that will do everything within his/her power to make sure that this happens in the name of the ship owner or operator (Keradinidis *et al*., 2012). These issues include to deal with bureaucratic problems such as customs or ordinary problems or miscommunication due to language difference. Ship agencies can be categorized as liner agent, ship broker, charterer' broker, sale and purchase broker, and port agent (Moshi, 2000: 5).

2. CUSTOMER RELATIONSHIP MANAGEMENT

With the outcomes of globalization seem clear, concept of customer relationship management in business has been referred to as the new "mantra" of marketing. It has been reported that many multinational companies have developed CRM products that do everything from track customer behavior on the Web to predicting their future moves to sending direct e-mail communications (Winer, 2001).

As service providers, ship agencies usually and have to use CRM applications. From marketing perspective port agencies, as a marketing institution, have a responsibility of goods to be in the right place, right time, and the right price (Çolak, 2007: 24). Ship agencies are essential in maritime business. The shipowner needs a representative who will take care of his ship in ports in abroad with good knowledge of local situation, such as marketing and port conditions and is capable of handling all the necessary work for the shipowner (Moshi, 2000:8). CRM can be defined as a customer's relationship with a shipping company involves prices, services, scope of service, schedule, customer relations, company history, convenience, brand name and value-added services (Pereira *et al*., 2018). In the following sections, some concepts which are correlated with CRM such as customer satisfaction, customer value and customer focus marketing will be briefly explained.

Customer satisfaction

Satisfaction can be defined as the feeling of being happy or disappointed by someone that arises because of comparing the perceived (product or result) against their expectations, whereas customer satisfaction is an after-purchase evaluation where the chosen alternatives are at least the same or exceed expectation (Santoso *et al*., 2021). CRM and satisfaction are highly correlated cause it is suggested that the overall goal of relationship programs is to deliver a higher level of customer satisfaction than competing firms (Winer, 2001). A company that able to manage CRM well will lead to increased customer satisfaction (Santoso *et al*., 2021).

Customer value

It is suggested that customer value is a strategic weapon in attracting and retaining customers and has become one of the most significant factors in the success of both manufacturing businesses and service providers (Wang *et al*., 2004). According to Gale (1994), customer value is market perceived quality adjusted for the relative price of organization's product. Customer's opinion of organization's products (or services) as compared to that of its competitors (as cited in Graf & Maaf, 2008). Customer value is essential for every service organization as creating customer value increases customer satisfaction and the customer experience. It also increases loyalty, market share, price and efficiency and reduces errors (Mahajan, 2020). Performance of CRM activities of any organization is strongly related with creating customer value cause the fundamental objective of CRM is to ensure steady streams of revenue and maximization of customer lifetime value (Wang, 2004).

Customer focus marketing

Customer focus can be defined as to create value to customers continually. It is one of the main components of market orientation that provides strategic superiority (Baş *et al*, 2016). Companies need to develop their strategies based on a customer focus. This kind of focus is required for customer retention which can be seen a key outcome for organizations. According to a study a little as a 5% increase in retention had impacts as high as 96% on the net present value delivered by customers (Winer, 2001). Customer focus is essential in shipping industry, as one study in shipping industry suggested that companies should actively provide tailored customized services and shipping programs to enhance customers' loyalty and satisfaction (Chen *et al*., 2018).

3. METHODOLOGY

This study is based on determining customer relationship management practices of ship agencies. The universe of the study is the ship agencies who has a commercial website in Turkey. To achieve this goal, all shipping agencies in Turkey were searched through internet search engines, and 55 total shipping agencies were determined as the universe of the study. Due to highly restricted period of Covid-19, it is decided to collect data by e-mail by using a semi-structured

questionnaire which was sent to 55 ship agencies in the period from the 1st-10th of May 2021. To increase the sample size, another reminder e-mail was sent between 11th to 15th of May to those agencies. There were 7 shipping agencies who responded all the questions. Thus, 7 shipping agencies were determined as the sample of the study.

4. FINDINGS

In this part ship agencies' responses relating with the challenges, they experience about customer focus approach, strategies to improve customer relations, details of customer focus marketing and challenges of building customer value are going to be presented.

Port agencies' answers to including challenges about maintaining customer value can be shown in Table 1.

Table 1. Challenges of customer focus approach of ship agencies

Statements	n
-Customer can easily switch to another agent	1
-Customers might perceive some of our commitments as 100% certain	1
-Lack of customer planning	1
-Difficulties to achieve customer satisfaction	3
-Confusing customer focus with doing exactly what they tell us to do	1
Total	*7*

According to Table 1, ship agencies generally complain about the difficulties to achieve customer satisfaction. For instance, one agent clarifies this issue:

"We should have a customer focus for offering services and determining price. Various and independent demands and requirements of ship owners make it difficult for forwarders to provide customer satisfaction." (Ship agent 6)

Even if customer satisfaction is a key goal for almost all the organizations, one participant claims that it is nearly impossible:

"Our customer focus strategy just means as customers satisfaction. The only strategy we have is to facilitate customers' work. The challenge of it is, to satisfy people is nearly impossible. They always find something to complain about." (Ship agent 3)

Table 2. Strategies to improve customer relations

Statements	n
-7/24 contact with telephone and e-mail	1
- Observing customers and building sincerity	1
- Offering privileges e.g., discounts or reservations	1
- Offering priorities such as face-to-face conversation with video conferencing tools	1
- Face-to-face meetings e.g., lunch or visit	1
- Determining customer requirements before contact	1
- Empathizing with customer to be solution-oriented	1
Total	*7*

According to Table 2, ship agencies have various strategies to improve customer relations. One agent gives special attention to customized CRM:

"CRM is the same at all businesses all over the world. The more sincerity you manage build; the more customers you will persuade to work with you. Because every customer came to your office is different, you must modify your attitude for each of them. Additionally, you have to observe, know your customer and build sincerity based on these observations." (Ship agent 3)

Table 3. Priorities for hiring to sales department

Statements	n
-Obeying the law	1
-Prioritizing qualified applicants (e.g., high skilled of communication, command of English, compatible with office working conditions)	1
-Prioritizing applicants who meet HR market requirements	1
- Experienced and future goal-oriented applicants	1
- Applicants who can easily communicate with customers	1
- Applicants who can express themselves well	1
-Applicants who are active, presentable and have analytic thinking	1
Total	*7*

According to Table 3, ship agencies have various priorities relating to hiring including obeying the law and promoting high qualified applicants. One agent claims that human resource is the key to improve customer relations:

"Sales department is the most important department in every shipping company. Because this department initially contacts the customer and provides the continuous commercial relation, staff in this department should establish the best dialogue with the customer. For instance, the staff member has customized qualifications according to the region (e.g., Excellent command of Arabic for companies mostly trade with the Middle East) and staff members who mostly contact with their customers at working office should care more about their physical appearance or personal care." (Ship agent 1)

Similarly, another agent points out the importance of the sales team:

"It is very important that the sales team member easily communicate with the respondent. We always care about this issue." (Ship agent 4)

In Table 4, responses of ship agencies relating with customer focus marketing can be seen. One agent did not respond to this question. According to the Table 4, ship agencies adopt various strategies for conducting customer focus marketing including offering customized services, improving services, offering services quickly and conducting market research. For instance, one agent claims that:

"We have different strategies for different customers. If the customer requests the most suitable freight, we look for shipowners mainly offer good freight. If the customers care for service quality and fast delivery, we look for a shipowner with high quality services." (Ship agent 2)

One agent points to the importance of market

research:

"For the prospective customer, first we make research about the customer and his/her requirements e.g., price discounts we can offer or operational solutions. Then we conduct marketing activities". (Ship agent 1)

Table 4. Details of customer focus marketing

Statements	n
-We apply different strategies to different customers according to their demands	2
- We determine our service offering then we build target market and improve our services	1
- It is aimed to offer best service in line with every customer's request	1
- We offer service with information as soon as possible	1
- We collect data relating with the customer then offer promotion to him/her	1
Total	*6*

Table 5. Challenges for building customer value

Statements	n
-Lower profits due to fierce competition	4
- Customers' insistences to postpone previous payments	1
-Negative effects of Covid-19 Pandemic	1
- Unpolite behaviors of some customers	1
Total	*7*

In Table 5, some challenges of ship agencies relating with building consumer value can be seen.

About half of the agencies claim that fierce competition makes their profits lower.

One agent clarifies pricing issues with the competition and input costs:

"Price is the most important part of our job. Even though you offer the best service, unless you don't offer a good price, you can not convince your customers. There are lots of ship agencies actively working in maritime transportation in these days, so the competition is harsh, and it makes profits lower. Additionally, in shipping business inputs costs are highly unstable (e.g., oil), thus the freight you offer to your customer might be changed day-by-day. This issue might cause customers to complain. Another common problem with the price is demurrage[i]. Such incidents from customers' wrong scheduling error might increase cost due to demurrage. In such incidents sales representative must convince the customers, otherwise customer loss is possible." (Ship agent 1).

"Every customer has a different style. Some customers might use strong language and this style can effect negatively to the relationship. We adopt negotiation needed in such cases". (Ship agent 7)

Table 6. Methods to evaluate customer satisfaction

Statements	n
-By customer feedback after service offering	2
- By telephone/e-mail survey after service offering	2
- We don't. If they continue to work with us, it means that they are satisfied	1
- We demand our customers to contact with us for negative feedback	1
- We regularly ask our customers our services and to state complaints if any.	1
Total	*7*

In Table 6 evaluations of port agencies for customer satisfaction can be seen. Customer feedback and surveys are common methods. One agent only focus on negative incidents if it is any.

One agent claims that telephone surveys are useful:

"After service offering, we contact to the customer both telephone and e-mail to compensate -if any- inadequate service is given." (Ship agent 5)

Another agent claims that they don't use statistical methods. Here he/she clarifies why:

"We evaluate service quality by asking directly to them whether they are unsatisfied with our services. Because we have strong relationships with our customers, I don't think statistical methods to evaluate their attitudes would be useful." (Ship agent 3)

"For both port and address delivery cargos, we send our customers a survey after the operation is completed. We organize business improvement meetings based on these survey data to offer better service." (Ship agent 4)

4. CONCLUSION

This study aims to explore customer focus, challenges, relationship improvements and customer value, priorities for hiring to sales department and satisfaction evaluation strategies of the shipping agencies. According to the findings, ship agencies usually face difficulties to achieve customer satisfaction. As the research has shown that there is strong, positive relationship between customer satisfaction and profits (Winer, 2001), if shipping agencies want to make sustainable profits, they should fix those difficulties first. They use various tools and strategies to improve customer relations, such as 7/24 availability (telephone and e-mail), offering discounts, face-to-face or online meetings/lunches and empathizing with the customers. As e-mail is proofed to be a very cost-effective approach to customer retention (Winer, 2001), ship agencies' relying on e-mail communication should be appreciated. For companies' HR hiring strategies, it is seen that they mainly focus on applicants' qualifications such as experience, communication skills or English command. In this highly competitive market (both for

external and internal customers) this finding is understandable. For the details of customer focus marketing, ship agencies usually offer customized services, and they wish to offer to best service they can. The idea of customization is that it has turned customers into product *makers* rather than simply product *takers* (Winer, 2001). From this point of view, agencies let their customers help to make their service rather than just to take. As price is suggested to be an important pillar of customer value (Choo *et al*., 2012), ship agencies complain about the fierce competition which is suggested to have a considerably negative effect on prices. Additionally, effects of Covid-19 and payment postpone requests affect customer value also negatively. Evaluating customer satisfaction is a key outcome. According to the findings, ship agencies regularly use customer feedbacks, telephone, or e-mail surveys after service offerings. Only one agent claim it is unnecessary to evaluate customer satisfaction and other one evaluates only for negative conditions.

For future studies other dimensions such as loyalty, word-of-mouth and repurchase intention can be explored, quantitative methods (mass surveys) can also be used to generalize findings.

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[i] Demurrage is a fine or charge that is levied by a courier or freight provider if they do not take their goods away from a port or terminal within a predefined amount of time (https://www.tradefinanceglobal.com/freight-forwarding/demurrage/).

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