The International Trade Movement and Container Markets' Competitiveness in the Eastern Mediterranean Region: The Case of Egyptian Ports/Terminals

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Abstract:

The global economic system has recorded a wide range of factors that have helped to globalization, the most important of them being the industrial-technological revolution. Globalization has a significant impact on the transportation sector in general, particularly the maritime transport industry. The steady growth of seaborne trade over the last two decades has resulted in an increase in container ships, container ports, and terminals. Ports are regarded as the foundation of international trade. According to (Unctade, 2021), seaports handle approximately 90% of global trade. So, ports and container terminals are important factors in international trade, and the competitiveness of container ports has been a major issue over the last decade.

The Mediterranean has become one of the leading successful trading routes in the world, driven by a transport network linking coastal cities with their hinterland. The Mediterranean Sea recorded

a rising number of ports and container terminals that sought to promote their growth rates and market share. They introduced further high-quality services to increase their competitive advantage, enabling the ports to keep their customer's loyalty and attract new shipping lines. Being competitive at the international standard requires a certain number of conditions to be fulfilled. Understanding port competitiveness can help port operators, shipping agents, and shipping lines develop strategies to gain more share from the market. After reviewing the literature studies concerned with evaluating the ports' competitiveness according to selected criteria and proving their effectiveness in measuring the ports' competitiveness in these literature studies, the research gathered these criteria and classified them under four determinates to identify the drivers of port competitiveness and their measurement using the Porter's Diamond Model.

Egypt has a lot of seaports located on the eastern side of the Mediterranean Sea; specifically, the research shows the current situation of competitiveness container ports or terminals in Egypt compared with others in the eastern Mediterranean region which include 14 container terminals/ports in 6 countries, in the period from 2004 to 2019. The study also highlighted the existence of ten determinants of port competitiveness that may increase or undermine the competitiveness of container ports or terminals in Egypt. Thus, strategies should focus on enhancing competitiveness. Four seem to be external criteria, and six seem internal criteria. The study also

divides the competitors of Egyptian ports into three categories competitors from first degree, competitors from the second degree, and competitors from the third degree.

The research reaches to that the situation of the Egyptian ports gets worse with competitors from the first category due to the enormous competition from the advantages of good ports/terminals' infra/superstructure, their strong growth rates, and the threat from their continuous development and modernization. There is also, fierce competition from ports in the second category because any increase in the market share of any port in this market only means a shortage from the market share of another port. Finally, no ports compete with the Egyptian ports from a third degree in the short and medium-term except if they undergo a radical development and modernization. The research suggests some recommendations to Egyptian ports/terminals to achieve an advanced competitiveness position in this container market, such as establishing a new competitive and stable pricing for port services, maintaining the loyalty and affiliation of existing customers, achieving their satisfaction, and attracting new customers. It also suggests some attractive policies to encourage the local and foreign investments towards developing ports/terminals' infrastructure and building new projects and developing the port's hinterland.

Keywords: International Trade, Diamond Porter's Model, Market share, Comparativeness, Logistics Performance Index, Connectivity, Deviation.

Introduction:

Effective international trade depends on efficient transport and transport facilitation that reduces the time and cost of customs and other trade procedures and integrate new technologies for administrative formalities. According to the importance of maritime transport (about 90% of world trade goes through seaports) so effective international trade mainly depends on efficient of maritime transport.

Egyptian ports face great competition with other ports in the East Mediterranean, and all of them look to gain a competitive advantage increase their growth rates and market share. Egypt has 48 seaports; 15 of them are commercial ports, the majority are located on the Mediterranean Sea, specifically on the eastern side., so this research is going to discuss the ports' competitiveness criteria to know the competitive position of Egyptian ports in the Mediterranean' container market and determine their strength points to maximize them, and their weakness points to minimize.

Research aims:

This research focuses on the container ports/terminals competitiveness concept. It measures the competitive rank of Egyptian container ports/terminals in the eastern Mediterranean region as an indicator to effective international trade by analyzing specific criteria that affect the port competitiveness, chosen according to the most effective criteria in the literature

review related to this topic. Finally, recommend some elements that help the Egyptian ports achieve an advanced competitiveness position in this market.

Research Problem:

There is intense competition between Egyptian ports and other regional ports located on the eastern side of the Mediterranean Sea, which need efforts to survive and continuity by increasing their international trade market share, maintaining the loyalty of port customers, and trying to win new customers. Therefore, it is essential to determine the influencing factors of ports' competitiveness and know the competitive position of Egyptian ports compared to other ports in the region, to find the answer to the following questions "What are the current situation of competitiveness container ports or terminals in the eastern Mediterranean region? And how can Egyptian ports increase their market share and growth rates?"

Research Questions

- What is the importance of Egyptian ports in the international trade?
- What are the factors that affect the port's competitiveness?
- Do Egyptian ports have a competitive advantage on the eastern Mediterranean Sea?
- What are the weaknesses that the Egyptian ports suffered from?
- Which methods are appropriate for increasing Egyptian ports' growth rates and market share?

Research Methodology:

This research will use Diamond Porter's Model to measure the competitiveness of the ports/container terminals in the eastern Mediterranean region by selecting some criteria that have been repeatedly proven in other studies. It will be dividing these criteria into four major categories (Factor conditions, Demand conditions, Related and supporting industries Firm strategy, structure, and rivalry) with assuming that competitive dynamics activate interactions between these four criteria. The research will also rearrange these four categories into two major categories (external criteria and internal criteria) to use them to determine the current situation of Egyptian container ports/terminals and evaluate their competitiveness compared with some other ports/terminals in the Eastern Mediterranean Sea region.

Finally, the research will define the requirements for increasing the competitiveness of the Egyptian ports and increasing its productivity growth rate and market share.

Research Limitations:

The research will be limited only to some selected container ports and terminals located in the eastern Mediterranean region, including 14 container terminals/ports in 6 countries from 2005 to 2019 to neglect the period of Coronavirus.

1. The Competitive Ports

Ports generally face great competition with other ports in the region, and all of them look to have a competitiveness advantage in order to survival and continuity which requires a certain number of conditions to be fulfilled such as increasing their productivity growth rates, gaining more share from market, keeping the loyalty of their customers, and trying to win new ones.

1.1 The definition of competitive ports

Effective international trade depends on efficient maritime transport and transport facilitation that reduces the time and cost of customs and other trade procedures and integrate new technologies for administrative formalities. The competitive strategy in maritime transport mainly deal with terminals rather than ports; in this research, we will concern with container terminals but some ports initiated as container terminal in their first stage, so we are going to focus on the number of containers handled in container terminals or container ports (Heaver, 1995).

Seaport competition is competition between port undertakings or terminal operators in relevancy-specific transactions. The target drives every operator to realize the most growth in relevancy product handling, whether helpful or otherwise. Port competition is influenced by (1) specific demand from customers, (2) specific factors of production, (3) supporting industries connected with every operator, and (4) the precise

competencies of every operator and their rivals. (Van de Voorde and Winkelmans 2002).

1.2 The ports industry as a competitive industry

Globalization has had a significant effect on the transportation sector and the maritime transportation industry. There have been several global developments that have made the port industry a dynamic industry.

The most significant global developments are:

- The close connection between maritime transportation and economic competitiveness maintenance and enhancement.
- Most countries are heading toward becoming a logistics center, with advanced seaports and logistics facilities (Economic and Social Council, 2006).
- New production and distribution strategies of Manufacturing companies concentrated production in Asia and took advantage of economies of scale in production and distribution (Economic and Social Council, 2006)
- The rising importance of Eastern Mediterranean ports due to the rapid expansion of container trade along the Far East-Europe route through the Suez Canal and the East-West route in international seaborne trade would provide a sustainable development opportunity. (Ferrari et al., 2006)
- The new Suez Canal good effect, especially on container traffic in the Mediterranean, allows more and large ships to pass and minimize the passing time (Yetkili, 2016).

2. Egyptian ports in the Mediterranean east region

Egypt is located at one of the major international maritime shipping lanes and trade and transport routes with total coast lengths of 2900 km, bordering at the Mediterranean Sea, Gulf of Suez, Gulf of Aqaba and Red Sea. Due to the presence of the Suez Canal, Egypt has a multitude of seaports, including commercial ports and specialised ports, i.e. mining, petroleum, tourist, fishing and special nature ports.

2.1 The current situation of Egyptian ports

Egypt has 48 ports, 15 commercial, 33 specialized to facilitate interational trade. Some of the Egyptian ports serve as gateways between markets outside of Egypt and Egypt, such as Port of Alexandria, El-Dekheila, Al-Arish, Suez, El Adabiya, Nuweiba and Safaga. Other ports act as transhipment hubs, such as East Port Said Port. In addition, there are ports, which follow both roles, i.e. they serve as gateway and transhipment ports; these include West Port Said Port, El Sokhna and Damietta (Ministry of transport, 2021).

Egyptian ports handled 171 million tons of cargo, including 7.2 million TEUs in 2019 and about 6.5 million containers (TEU) handled in east Mediterranean Egyptian ports (maritime transport sector achievements report 2019). The number of seaports on the Mediterranean is 15 (six commercial, nine specialized), and the total number of seaports on the Red Sea are 33 ports (9 commercial, 24 specialized); the total number of berths is 197 Berth, with a total length of approximately 37.5 km (Ministry of transport, 2021).

2.2 Egyptian commercial ports authorities

Egypt has 15 Egyptian commercial ports belonging to three-port authorities, namely the Alexandria Port Authority (APA), the Damietta Port Authority (DPA) and the General Authority for Red Sea Ports (RSPA), as well as the General Authority for the Suez Canal Economic Zone (SC Zone), as shown in Table (1). (Egyptian data bank, 2021).

Table (1): The authorities of Egyptian Commercial Ports

Alexandria Port Authority	Alexandria port
	El-Dekheila port
Damietta Port Authority	Damietta Port
General Authority for Suez Canal Economic Zone	West Port Said Port
	East Port Said Port
	El Arish Port
	El Adabiya Port
	El Sokhna Port
	El Tour Port
General Authority for Red Sea Ports	Suez Port / Port Tawfik.
	Zayteiat (Petroleum Dock Port)
	Hurghada port.
	Safaga port.
	Sharm El Sheikh port.
	Nuweiba port

Source: Egyptian maritime data bank, maritime sector, Ministry of transportation, 2018

3. Measurement of the container ports competitiveness

According to traditional economic theory, the factors of countries' comparative advantage are location, natural resources (land with minerals, energy, water), and labor, Porter (1990) introduced four competitive factors, which can create competitive advantages on a global scale. The Diamond Framework demonstrates how four criteria affect an industry's, regions, or country's international competitiveness. It also assumes that competitive dynamics are interactions between the four determinants, which contribute to the participating enterprises' innovation and renewal dynamics. This framework will be used to evaluate the competitiveness of Egyptian ports to those of other ports in the Mediterranean Sea region by studying 14 container ports/ terminals in 6 countries during the period from 2004 to 2019. These ports are Mersenne, Izmir, Embarly, Antalya in Turkey, Beirut in Lebanon, Haifa, Ashdod in Israel, Limassol in Cyprus, Thessaloniki, and Piraeus in Greece, Alexandria, Dekheila, Damietta, West Port Said, and Port Said East in Egypt.

3.1 Diamond Porter's Model

Diamond Porter's Model measure the competitiveness of the ports/container terminals by selecting some criteria that have been repeatedly proven in other studies and dividing these criteria into four major categories (Factor conditions, Demand conditions, Related and supporting industries Firm strategy,

structure, and rivalry) assuming that competitive dynamics activate interactions between these the four criteria, which as a system contributes to achieving the enterprises' innovation and renewal (Porter, 1998, 77-90)

3.1.1 Factor conditions

Factor conditions refer to production factors or port infrastructural. The more specialized factor conditions, the more increases of Port international competitiveness.

Specialized factor conditions in the port are clusters of maritime activities, natural resources, capital resources, quality of human resources, and possibilities of combining various transport modes like road, railway, water, pipeline, and air transportation, ICT infrastructural in addition to scientific infrastructure.

3.1.2 Demand conditions

The more the port achieves an advanced competitive position, the more it can have a larger market and larger customers. The Port 'lead users' such as the most prominent shipping lines in the world (CMA, APM, Maersk, Hapag Lloyd, Arkas...etc.) are encouraging the port to innovate and increase productivity to gain their customers' loyalty and meet their needs. It also provides Port suppliers and service providers an opportunity to expand their operations and maximize their profit.

3.1.3 Related and supporting industries

The more the contribution of related and supporting industries in the port community, the more strong the competitive port

advantage and the more connection with customers through networks. Suppliers in the Port who have a presence in various countries are typically multinational competitors who strive to be productive and inventive to reserve their position. Shipping agents, Insurance and Banking, Customs, Towing and guidance services, ship repair services, dredging companies, and other transportation companies are examples of relating and supporting industries in the port community.

3.1.4 Firm strategy, structure, and rivalry

In a dynamic environment, flexibility is an essential factor in increasing the international competitive advantage of firms in industries or regions requiring the renewal of management practices and organizational restructure and demonstrating operational flexibility. If the strategic renewal stays away, the international competitive advantage is the global competitive advantage decreases.

Ports and shipping companies compete to a huge extent, locally, regionally, and internationally by depending on continuous increases in scale, achieving throughput efficiency according to the international key performance indicators, minimizing the total costs, focusing on resources optimal allocation, and maximizing the shareholder value.

3.1.5 The role of the government:

The government's role, according to Michael Porter, is a catalyst and challenger, stimulating companies to be more competitive,

innovative, and renewal their strategy by interactions between the four Porter' Diamond demonstrates (Porter, 1990):

- Investments in both physical, technology, and knowledge infrastructure (factor conditions),
- Purchases of products and services (demand conditions),
- Rules and regulations according to environmental requirements (related and supporting industries),
- Efforts to increase competitive rivalry (firm strategy, structure, and rivalry).

3.2 The integrated double diamond model:

Because of the importance of multinational companies, which is its competitiveness influenced by other countries' diamonds and this, by the way, affects the mother country's competitiveness, so it is important to add the multinational activates as an outside variable to porter's diamond, especially with the global of maritime transportation. Therefore, Porter's traditional diamond model has been extended to the integrated double diamond model whereby multinational activity is formally added to the model to reflect that the size of the global diamond is fixed over time, whereas the size of the local diamond varies depending on the size and competitiveness of the country. The difference between international and national diamond thus represents international or multinational activities, as shown in figure 1 (Moon, 1998, p. 137 - 138).
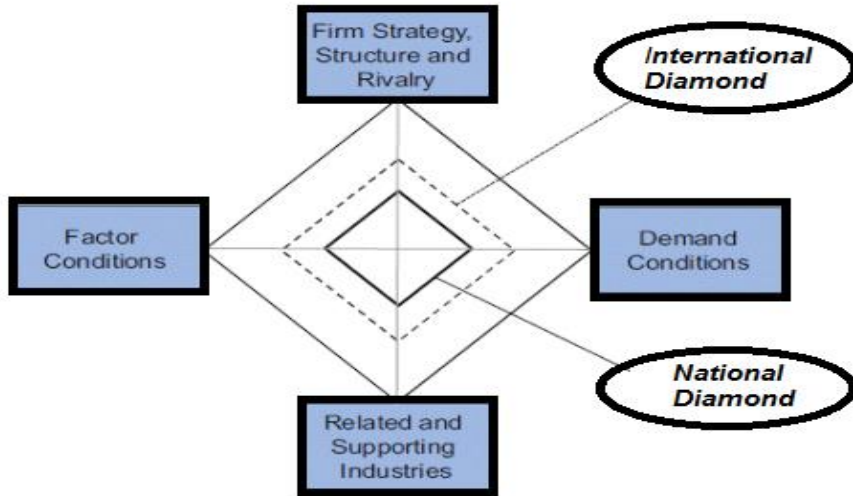
(Moon, H.C., Rugman, 1998, 135-150)

Figure (1): The integrated double diamond model

The literature review of competitiveness criteria

Being a competitive Port in the maritime world requires a certain number of conditions to be fulfilled after reviewing the literature studies concerned with evaluating the port's competitiveness according to selected parameters. Some studies selected quantitative elements of ports like port infrastructure, port operations, port hinterland conditions, and port developing potential but other studies have focused on port costs, the port's services quality, local port policies, connections between inter-port, and integrated supply chain,. etc as factors that can determine the competitiveness of ports. Finally, establishing evaluation systems to measure the international competitiveness

of ports by using Analytic Hierarchy Process (AHP), Data Envelopment Analysis (DEA), Integer Linear Programming, Dynamic Programming, Logit Models, Cluster Analysis, Game Theory, and Fuzzy Process,..etc. According to these literature studies in Table (2), this research gathered the criteria that affected ports competitiveness and divided them under the four determinants of "Diamond Porter's Model".
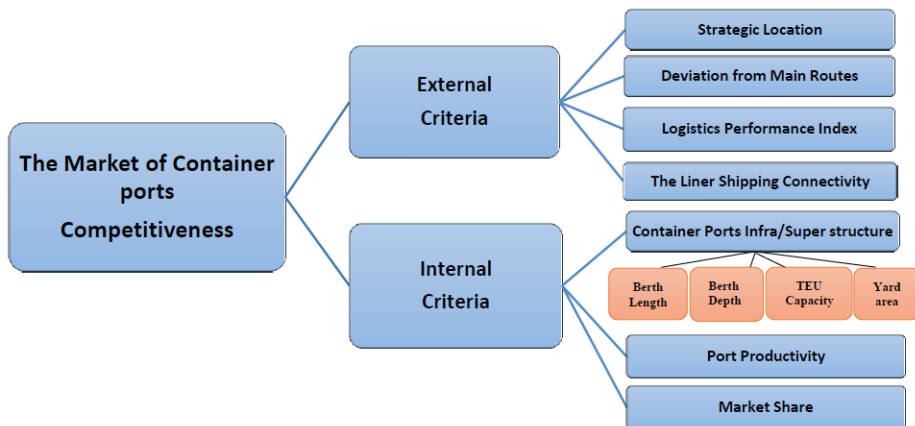
Table (2): Criteria of container ports competitiveness

Factor conditions	Demand conditions	Related and supporting industries	Firm strategy, structure, and rivalry
• Port Location • Water Depth • Hinterland • Quality of Labor • Logistics infrastructures • Storage area • Storage facilities • Port accessibility • Diversify of ship's route • Internal network ICT • Quay Crane • Port equipment's • Asset specification	• Local Market Bases • International trade • Market share • Cargo throughput • Dwell Time • Port Handling Cost • Service Quality • Navigational availability • Number of vessels calling • Reliability • Responsiveness • Frequency of ship's calling • Accessibility	• Ship Facilities • Cargo Services • Number of Feeder Services • Information services • Intermodal connection • Shipping services • Connectivity • Logistic providers • Shipping agents • Insurance and Banking • freshwater • Bunkering and ship's products • Customs • Towing and guidance • ship repair • dredging companies	• The policies. • Custom Clearance • Management Level • Labor regulation • Nautical Constraints • Distribution Cost • Level of congestion • Flexibility and productivity • Value Added • Good reputation related to damage and delays • Handling charges • Berths capacity • The physical aspect and legislation • Structure of port authorities and ownership • Operation conditioning

Source: By Author from literature reviews applying the four Porter's competitive factors.

3.4 The container ports' market competitiveness criteria:

This research is going to dive the competitiveness criteria into two kinds: the first kind concerned with external criteria that related to the port country and measures some indicators in this country which may be caused by natural factors and have a direct effect on the port performance like strategic location indicator, deviation from main routes, connectivity, and Logistics Performance Index. The second kind was concerned with internal criteria which measure the port performance indicators like ports/Container terminal Infra/Superstructure, port productivity, market share, as shown in figure no. (2), and also going to merge internal criteria with external criteria to know the current situation of Egyptian Port's competitiveness in the Mediterranean region.

Source: Collected Criteria by Author.

Figure (2) Measurement of Container Ports Competitiveness

3.2.1 The market of container ports' competitiveness according to the external criteria

External criteria are related to the ports' country indicators which measure the performance indicator in this country and affect the performance of the port, such as: directly

3.2.1.1 Strategic Location:

Container terminals in the East Mediterranean region are strategically positioned along a significant international maritime trade route connecting the East and the West so, they can play an important role not only in connecting East and West markets but also in serving northern European ports and North African ports, which allowing to this region to act as a logistics hub between markets and providing a shipping global network.Egypt has an unrivaled location, bordering the Mediterranean Sea, Gulf of Suez, Gulf of Aqaba, the Red Sea, and the Suez Canal, as a connector between Europe, Africa, and Asia.

3.2.1.2 The Container Ports' Deviation from Main Routes

Deviation from main routes is crucial in assessing the port's competitiveness. The shorter the distance between the main shipping route and a particular port, the more time and money saved. Maritime shipping lines provide the most direct services possible, so they favor ports with the shortest deviation ports. Therefore, the lower the port deviation from the main route, the higher its competitive advantage. According to the deviation,

Egyptian ports are the most distinguished ports, especially Portsaid, Damietta, and Alexandria ports, as shown in table (3).

**Table (3) The Container Port' Deviation from main routes**

Country	Port	Rank	Deviation distance (Mile)
EGYPT	PortSaid	1	0
	Damietta	2	7
	Alexandria	3	32
Greece	Piraeus	4	1078
	Thessaloniki	14	179
Israel	Ashdod	6	211
	Haifa	7	255
Lebanon	Beirut	8	317
Turkey	Izmir	10	332
	Mersin	12	401
	Ambrali	15	1152
Cyprus	Limassol	5	178

Source: By Author, derived from port authorities.

3.2.1.3 Logistics Performance Index (LPI)

Since 2007, International Trade and Transport Department, affiliated with the World Bank, has published the Logistics Performance Index (LPI). The LPI check every year six elements: the customs' efficiency and border clearance management, the trade' quality, and transportation infrastructure, the ease' arranging with competitive shipments price, the competence and logistics services quality of forwarding and trucking and customs brokerage, the consignments tracking, tracing and frequenting till reach to consignees within scheduled delivery times.

Figure (3) shows The Egypt LPI is very low; Egypt suffers from weakness in all LPI components, especially tracking, tracing, and customs.
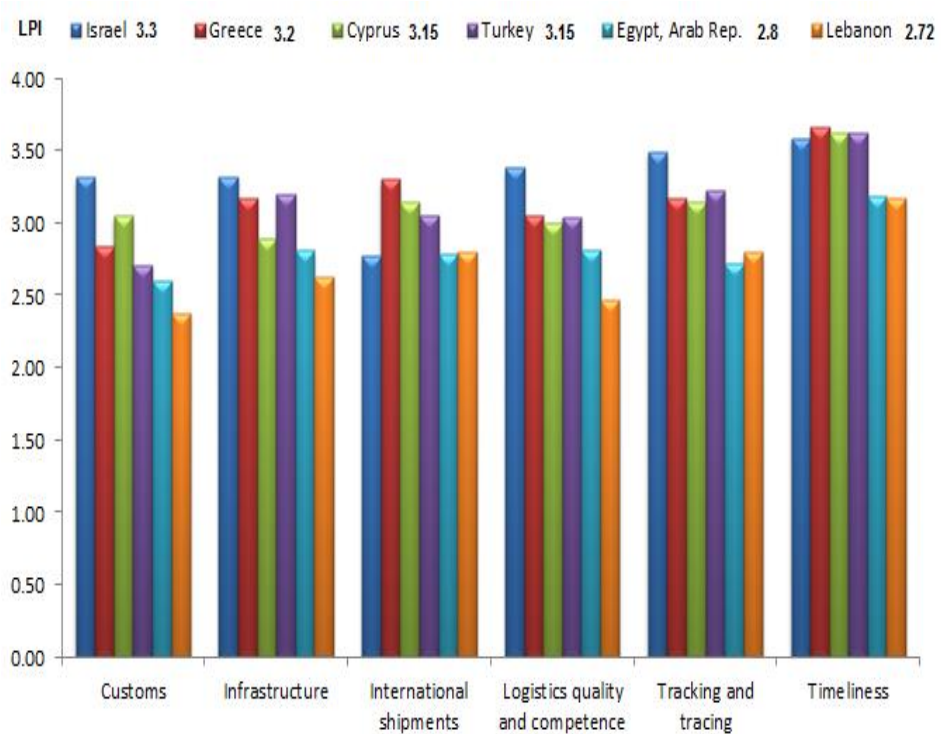

(https://lpi.worldbank.org/international, 14/2/2021)

Figure (3): Logistics Performance Index for east Mediterranean countries from 2005 to 2019

3.2.1.4 The Liner Shipping Connectivity Index (LSCI)

Port connectivity is an influential factor that is related to port competitiveness. The Liner Shipping Connectivity Index (LSCI) decides the countries connection degree to global shipping networks. UNCTAD determines it by 5 five maritime

transportation sector elements: ships' number, the capacity of container-carrying, maximum vessel size, number of services, and companies' number that operate container ships in a country's ports. The LSCI results indicate that Egypt significantly improved the Connectivity Index and the "best-connected countries" in the East Mediterranean Region due to their strategic geographic position, as shown in figure (4).
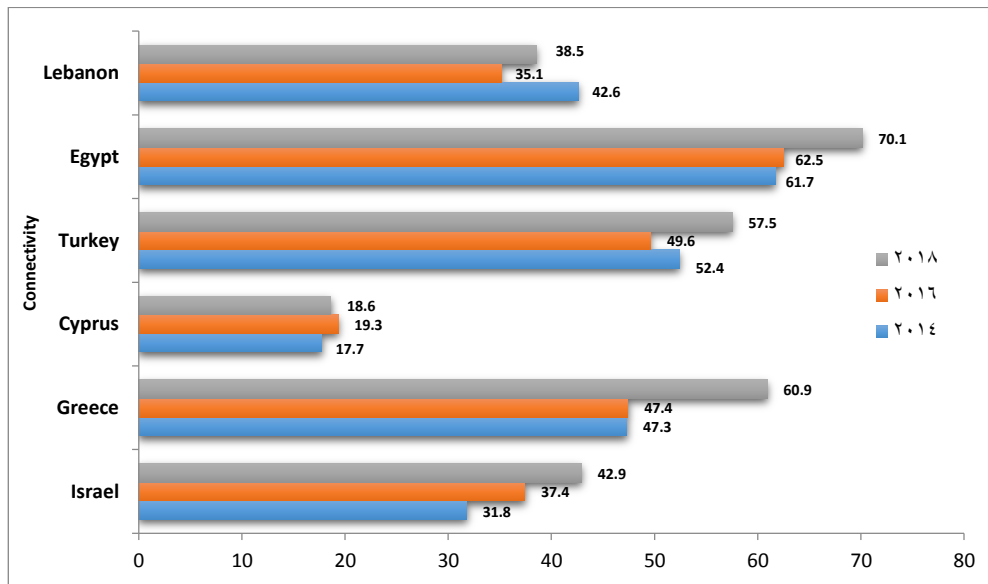
Source: By Author based on   https://data.worldbank.org/indicator 15/2/2021

Figure (4): Liner shipping connectivity index of East Mediterranean Region (2014, 2016, 2018)

3.2.2 The market of container ports' competitiveness according to the internal criteria

Internal criteria are used to measure the performance indicator related to the port itself such as ports/Containers terminal Infra/Superstructure, port productivity, and port's market share. According to these criteria, we are going to divide the competitors of Egyptian ports to competitors from first degree, competitors from the second degree, and competitors from the third degree.

3.2.2.1 Egyptian container ports' competitors from first degree

a) According to ports/container terminal Infra/Superstructure:

The chosen ports in this category are classified under the conditions of berth length (more than 2400m), depth of berth (16 m and more), TEUs capacity (3.5 million TEU and more), and container yard area (900 thousand m^2 and more) therefore, we found the East port said port is located in this category and the biggest ports compete with East port said port is Piraeus port and Embarly port.

East port said port has a good position in this category compared to the others, particularly in terms of berth depth, which is deeper than Embarly port's berth length and has the largest container yard area.

Table (4) Ports/Container Terminal Infra/Superstructure compete with the Egyptian ports from first degree

Container terminals	length of berth(m)	depth of berth(m)	Capacity Thousand (TEUs)	Container yard area (Thousand m²)	No. Gantry Cranes
Egypt Container terminals					
East port said	2400	17.5	4600	1200	18
Turkish Container terminals					
Ambarly Container terminals					
Mardas terminal	910	13-15	803	200	12
Kumport terminal	2180	15-16.5	2100	402	7
Mar port	910	16.5	2300	530	10
Greece Container terminals					
Piraeus Port					
Pier I	820	12 – 18	1000		7
Pier II	1480	14.5-16.5	3200	972.4	18
pier III	1000	18.5–19.5	1600		10

Source: By Author, derived from port authorities

b) According to port productivity:

East Portsaid Port started in 2006 as a strong port with increasing growth rates, making it the leading port compared to Ambarly Port in Turkey and Piraeus Port in Greece. In 2015 the Port of Piraeus began recording a strong growth rate, achieving productivity of 5.7 million TEUs in 2019 compared with 3 million TEUs handled in East Portsaid Port, as shown in figure no (5).
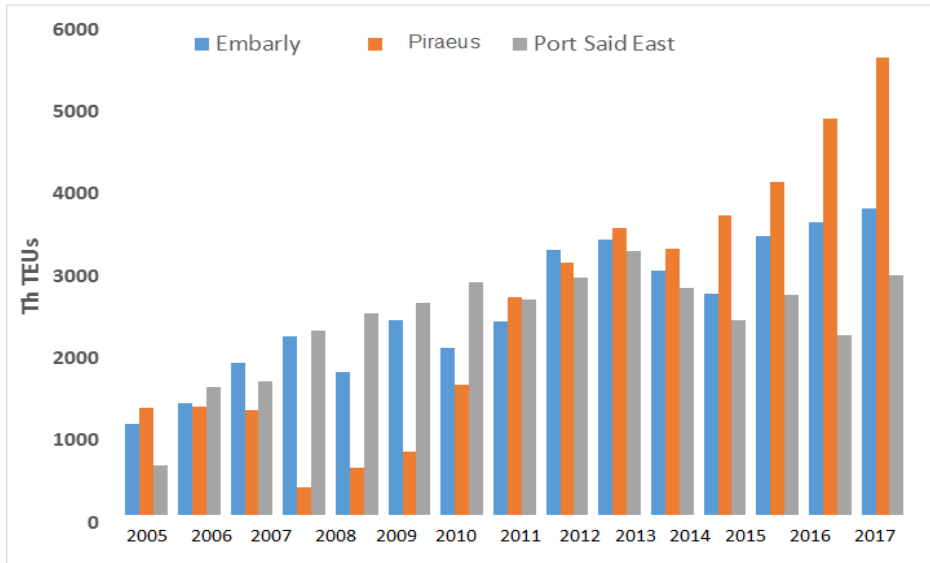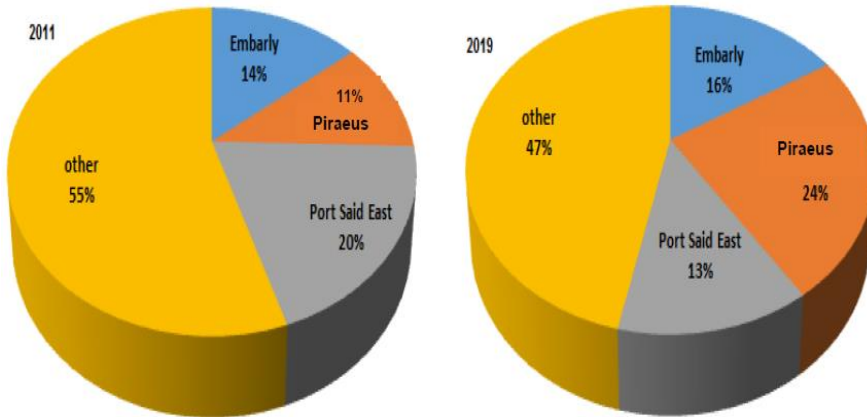
Source: By Author, derived from port authorities

Figure (5): Container terminal throughput from first degree

c) According to the market share:

When we compare between the market share of Ambarly port, East Portsaid Port, and Piraeus port between 2011 and 2019, as shown in figure (6), we note that the East Port Said Port's lost about 7% from its market share in favor of the Piraeus port which winning a 13% more share of the market in exchange for increasing market share of the Ambarly Port by 2%. In a conclusion, Piraeus port enjoys a large percentage of market share, large growth rates and also is the leader in this market.

Source: By Author, derived from port authorities
Figure (6): The market share of Ports/Container Terminal compete with Egyptian ports from first degree

The biggest threat from these ports is their continuous development and modernization and their aspiration to achieve more advanced ranks. Consequently, these ports pose a threat to the competitiveness of Egyptian ports in the current period, in the short, medium-term, and long term. This warns of the possibility that the Egyptian ports will lose their competitiveness in this category, and we expect the situation to be worse if the Greek and Chinese sides take the decision to establish the fourth container terminal project in the Piraeus port, which will increase the capacity of Piraeus port to 10 million TEUs.

Some new Egyptian projects will support the corrector procedures to save the competitiveness of Egyptian ports in this category, such as:

- The two new tunnels under the Suez Canal are hoped to improve the connection between port with road and facilitate crossing the Suez Canal to connect with major industrial cities in Egypt (Seatrade, 2021).
- The new long-term agreement between Hutchison ports and Egyptian ports for developing and operating Abu Qir's new container terminal with a total estimated investment $730m (https://hutchisonports.com).

These procedures are not enough and need more integrated corrector procedures to improve this situation before going out from this category competitiveness.

The port charges as set by the Egyptian Ministry of Transport are higher than other ports which compete with Egyptian ports and placed a burden on some Egyptian transshipment ports as hub ports. The port charges as set by the Egyptian Ministry of Transport are higher than other ports which compete with Egyptian ports and placed a burden on some Egyptian transshipment ports as hub ports. Egyptian port charges that had risen to unprecedented heights in 2015 on the back of Decree 488 and What costs around $70 thousand at the East Portsaid Port costs about 60% less, or around $30 thousand, at the Piraeus port in Greek so, some Egyptian ports lost some of the transshipment volumes (The Egyptian Ministry of Transport, 2018). After that, an amendment of decree 488 was issued to alleviate these negative effects (port economics management, 2021).

3.2.2.2 Egyptian container ports' competitors from second degree

a) According to ports/container terminal Infra/Superstructure:

The chosen ports in this category are classified under the conditions of berth length (less than 2400 m), depth of berth (less than 16 m), capacity thousand TEUs (less than 3.5 million TEU), and container yard area (less than 900 thousand m^2) we found West port said, Damietta, Alexandria & El-Dekheila, are located in this category, and the biggest ports compete with these Egyptian ports are Mersin, Ashdod, Haifa port, Limassol and Beirut as shown in table (5).

Table (5) ports/Container Terminal Infra/Superstructure from second degree

Container terminals	berth length (m)	berth depth (m)	Capacity Th. (TEUs)	Container yard area (m^2)	Gantry Cranes
Egypt Container terminals					
West port said	950+40 0 feeder	14	1500	1200	8
Damietta	1050	14	1500	620	10
Alexandria & El-Dekheila Container terminal					
Alexandria (ACCHC)	531	14	500	163	4
El-Dekheila (ACCHC)	1040	14.5	1000	406	11
HPH Alexandria	380	12	320	117	2
HPH El-Dekheila	510	12.8	470	180	3
Turkish Container terminals					
Mersin	1485	15	2600	251.4	11
Israel Container terminals					
Ashdod port	1768	15.5	2200	630	14
Haifa port	2060	15.8	2500	300	18
Cyprus Container terminals					
Limassol	1100	15	600	340	6
Lebanon Container terminals					
Beirut	1100	16.5	1200	350	12

Source: By Author, derived from port authorities

b) According to port productivity:

Alexandria Port Authority is considered one of the leading ports in this category and the most productive since 2008; although its terminals lost about 2% of the market in 2019 compared to 2011 Figure (7), we expect more development after the scheme of a multi-purpose terminal at Alexandria Port 55-62 with area 560 thousand m² and 2480 m berth length, with 17 m

depth, and handling capacity 1.5 million TEUs, also, ongoing and plans like the Alwerdian axis and the El-Dekheila Bridge which are expected to relieve congestion in Alexandria port and link the port to major industrial cities in Borg-el-Arab and Cairo, as well as the North and West Mediterranean coasts, and are expected to relieve vital bottlenecks for Alexandria port, which handles about 60% of Egypt's foreign trade.

The Izmir and Mersin ports in Turkey are strong competitors in this group, and the subsequent growth rates achieved by Haifa and Ashdod Port are indicative indicators that they will be strong competitors in the short-run (AAST, 2021), especially the construction of the Southport terminal in Ashdod and the Bayport station in Haifa, where these new port terminals are designed to handle the largest container ships of the triple E class and the first phase will consist of berths: lengths 800 m and 17.3m depth (israports,2021).

Source: By Author, derived from port authorities
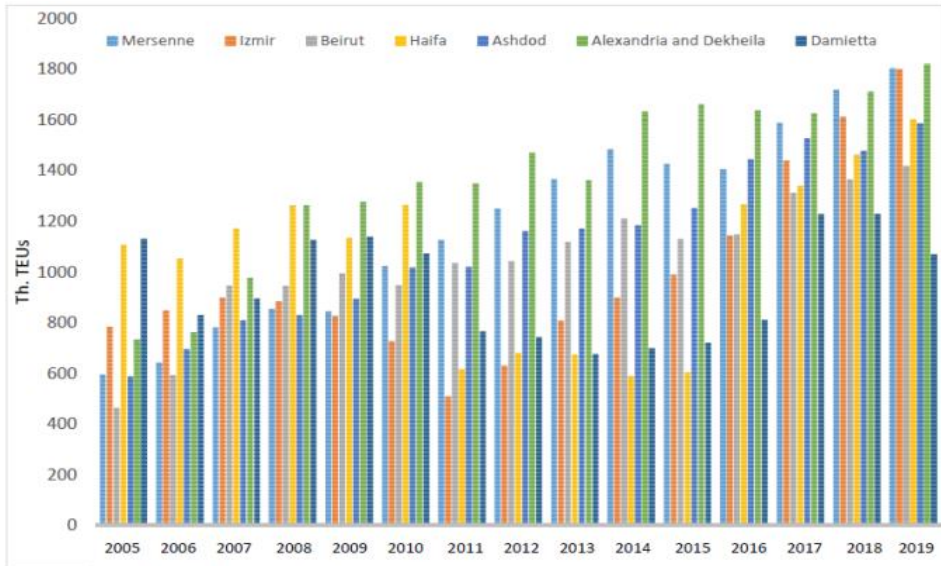

**Figure (7): Container terminal throughput from second degree**

Although the Damietta container terminal lost about 1% of the market share in 2019 compared to 2011 and has recorded the lowest according to containers productivity since 2016, which made the terminal outside the competition circle due to its inability to achieve good growth rates as Alexandria ports, Izmir and Mersin.

The new Damietta plans may change this situation because of the scheme to establish the new Damietta container terminal with

a capacity of 3.5 million TEUs, 1675 m total berth length, 17 m depth, and an area of 910 thousand m2.

c) According to the market share:

When comparing between the container market share from 2011 to 2019, we realize that despite the growth of some containers handled in these ports, the relative weight of the total share of the ports located in this category from the market is constant and represents about 43-44%. This means there is strong competition between these ports in this category, and the increase in the market share of any port only means a withdrawal from the market share of another port, as shown in figure (8).
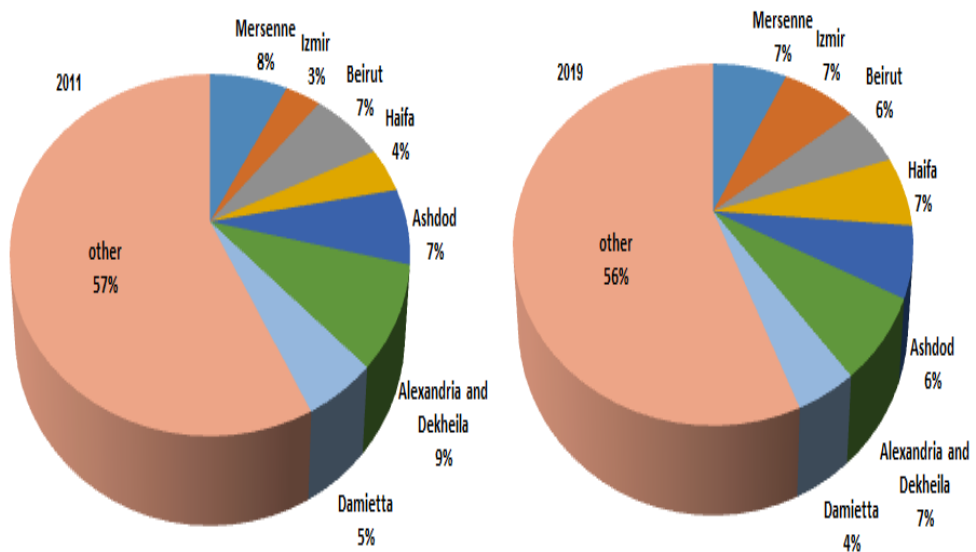
Source: By Author, derived from port authorities

Figure (8): The market share of Ports/Container Terminal compete with the Egyptian ports from second degree

3.2.2.3 Egyptian container ports' competitors from third-degree

Limassol, Larnaca, Thessaloniki ports are located in this category and are not competing with Egyptian ports in the short and medium-term, so it does not represent a threat to Egyptian containers ports in these periods except if they undergo a radical development and modernization of their infrastructure and superstructure, which takes a period before reaping its fruits. Therefore, these ports will be excluded from the series of ports competing with Egyptian ports.

4. Conclusion

Because of effective international trade depends on efficient maritime transport and transport facilitation that reduces the time and cost of customs and other trade procedures and integrate new technologies for administrative formalities, the major conclusion from this research are:

- The three Egyptian ports are selected to be examples for the ports that compete in the East Mediterranean and can support Egypt to be a global hub for trade and logistics, namely, Damietta, Alexandria, and East Portsaid.
- The situation of the Egyptian ports gets worse with competitors from the first category due to the massive competition in terminal infra/superstructure, strong growth rates of Piraeus port, the decreasing of Egyptian ports' market

share, and the threat from continuous development and modernization of other ports in this category.

- The weakness in all logistics Performance components is especially tracking, tracing, and customs which make the improvements are complex and reduce utilization of expected benefits from unique Strategic Location, the shortest deviation from main routes, and good liner shipping connectivity.

- Egyptian ports will possibly lose their competitiveness in this category represented by East Portsaid as an Egyptian hub port in the region" except if it takes corrector procedures and improves this situation.

- The ports of West Portsaid, Damietta, Alexandria & El-Dekheila, are located in the second-degree category and compete with Mersin, Ashdod, Haifa port, Limassol, and Beirut.

- There is fierce competition between ports in the second category because any market share of any port in this market only means a withdrawal from the share of another port.

- The consecutive growth rates achieved by Haifa and Ashdod Port besides the construction of the Southport terminal in Ashdod and the Bayport station in Haifa refer to the strong competitiveness with Egyptian ports in the short run. No ports compete with the Egyptian ports from a third degree in the short and medium-term except if they undergo a radical development and modernization.

5. Recommendation

1) Developing an immediate strategic plan aimed to improve the competitiveness of the Egyptian ports/container terminals, especially the East Portsaid port and Damietta port, provided that the plan includes:

• Establishing a new competitive and stable pricing for port services.

• Maintaining the loyalty and affiliation of existing customers, achieving their satisfaction, and attracting new customers, especially multinational shipping lines.

• Following attractive policies for local and foreign investments to develop port infrastructure and infrastructure projects and investment projects in the port's hinterland.

2) The importance of decreasing the weakness in all logistics performance components, especially customs and border management clearance

3) Maximizing the benefits from strengths points as unique Strategic Location, the shortest deviation from main routes, and good liner shipping connectivity.

6. Further Research

This study suggests two future studies:

• The role of the new container terminal in Abu Qir in increasing Egyptian ports competitiveness

• Studying the importance of having competitive Egyptian ports in the Red Sea region.

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