CRUISE TOURISM. DESTINATIONS, EVOLUTIONS AND ECONOMIC IMPACT

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Abstract
If, at the end of the last century, cruising was considered a form of luxury tourism, with the development of the specific infrastructure and the reduction of tariffs, it became, especially in the last decades, a form of tourism accessible to the general public. Unfortunately, as in the case of other forms of cough, the outbreak of the Covid-19 pandemic practically led to its cancellation. Considering that the currently available data are insufficient for an analysis of the evolution of cruise tourism in the post-pandemic period, the paper analyzes its evolution, by groups of destinations worldwide, only in the period 1996-2019. The analysis highlights the characteristics of the recorded developments, the appearance and disappearance of some destinations, as well as the evolution of the shares of cruise tourism in the total number of tourist arrivals, with evaluations of the impact on the regional developments of the destinations.

Key words: *cruise tourism, cruise industry, arrivals, regional development, time-series analyses*

JEL Classification: *C11, C22, L83, Z32*

I. INTRODUCTION

Cruise tourism can be traced back to the early 1960s, a period coinciding with the decline of transoceanic sea travel and the introduction of the first non-stop air travel between the US and Europe. The 1970s and 1980s were a period of moderate growth (except for temporary negative growth during the oil crisis of 1974-1975), with the volume of passengers carried worldwide increasing from about 500,000 in 1970 to 1.4 million passengers in 1980, 12.8 million passengers in 2008 and 29.7 million passengers in 2019 (Brida & Zapata, 2010; CLIA, 2020). The average annual growth rate over the past 30 years has been 7.37% (CLIA, 2011, 2019, 2020). Although the global financial crisis of 2008-2009 had a major impact on cargo shipping, cruise lines and cruise ports continued to experience passenger growth (Pallis, 2015).

In the 90s, this type of leisure tourism reaches Europe, Asia, and Oceania and experiences a period of important growth. Among passengers, North Americans represent more than 80% of the total world market, but according to studies by the Cruise Lines International Association (CLIA), the European and Asian markets promise great growth possibilities (CLIA, 2022).

Cruise tourism is a form of tourism developed since the last decades of the 20th century (Dehoorne & Petit-Charles, 2011) which relates its infrastructure consisting of the means of transport (cruise ships) and the ports that receive cruises, with the expectations and tourists' preferences. The interconnection relationship led to the development of both the transport infrastructure, which is also the accommodation infrastructure, and the development of port infrastructures, determined by the increase in tourist demand for visiting new destinations, mostly exotic.

This new branch of the tourism industry has led to particular ways in the process of forming the cruise product (Atanasova, 2020) which involves, on the one hand, offers to spend time on board cruise ships, and on the other hand, offers specific to the destinations visited , some of the most important aspects for a cruise tourist in choosing a cruise vacation (Anton, 2019) being the ship's itinerary, and the objectives to be visited, the number of days at sea, the quality of the service on board, the price of the cruise, the embarkation port, and last but not least, cognitive perception, affective evaluation and reputation are the basis of product choice (Gamez, 2019).

The development of cruise tourism has led to the appearance of specialized passenger ships with the aim of offering the best possible facilities. Fleets are formed and developed (Danuta, 2012) and increasingly powerful companies, such as: Aida Cruises, American Cruise Lines, Azamara Cruises, Carnival Cruise Line, Celebrity Cruises, Costa Cruises, Disney Cruise Line, Holland America Line, MSC Cruises, Norwegian Cruise Line, Princess Cruises, Royal Caribbean International, Virgin Voyages, Windstar Cruises.

Over time, cruise ships have evolved from hotels at sea to true floating resorts. From 1980 to

2019, the global cruise tourism fleet has grown from 79 to 369 ships operating worldwide (Papathanassis, 2019). A significant increase has occurred in the size and capacity of the average cruise ship, from 19,000 to 60,000 gross registers tons (GRT) (Papathanassis, 2019). Today, a modern ship such as Royal Caribbean's Symphony of the Seas (228,000 GRT) is about five times larger than the Titanic (46,000 GRT). Travel has become an end in itself, opening new perspectives in numerous fields (Pescvary, 2019).

At the same time, cruise tourism activities have important economic consequences. First of all, they led to an increase in revenues, but also in the number of cruises and transported passengers, with an impact both on port activities (Vega-Muñoz et.al., 2021; Vayá et.al., 2016) and on local and regional communities, measuring direct, indirect and induced impact requiring specific and standardized research methods and models for different entities (Kizielewicz, 2020).

Cruise tourism is a sector that is expanding more and more rapidly, targeting geographical units as cruise destinations among the most diverse (Benic, 2009) and facing challenges aimed at both the limits of overcapacity of ships and its relationship with host territories (Dehoorne et al., 2011).

From the point of view of relations with destinations, the desire of some cruise lines to visit some of the most exceptional/attractive ecosystems in the world can lead to major imbalances through gas emissions, sewage discharge, interactions with wild animals, etc. (Cerveny et al., 2020) or to such a large agglomeration of destinations as to produce the hostility of residents (Sedmak & Civre, 2017).

Some studies (Brida et.al., 2012; showed that, in general, residents have a positive attitude towards the development of cruise tourism from a social, cultural and economic point of view and would invest a high level of resources in cruise tourism if their income depends on this activity and if they believe that it brings them well-being.

On the other hand, the increase in the intensity of tourist traffic and the population in highly frequented destinations produce a strong influence both on economic resources and on the environment (Chiappa et al., 2011) especially in island destinations by increasing waste, pollution and agglomeration in recreational areas. Under these conditions, sustainable cruise tourism requires the permanent management of tourist pressure (Domínguez et al., 2023) at regional and local level, it requires maintaining a balance between the tourist potential, the capacity to regenerate the microclimate of the visited destinations and the economic and social development of them...

In December 2020, the Ocean Panel (High Level Panel for a Sustainable Ocean Economy) launched 'Transformations for a Sustainable Ocean Economy: A Vision for Protection, Production and Prosperity'. In this highly ambitious roadmap for a sustainable ocean economy, one of the pillars of action is represented by sustainable tourism, setting the objective that, by 2030, "Coastal and ocean-based tourism is sustainable, resilient, addresses climate change, reduces pollution, supports ecosystem regeneration and biodiversity conservation and invests in local jobs and communities." (Ocean Panel, 2020). According to some authors (Dowling & Weeden, 2017), climate is a major determining factor in the design and implementation of cruises in ocean spaces.

Taking into account these aspects, the main objectives of the analyzes carried out in the present study were to identify the place of cruise tourism among other forms of tourism at the global and regional level, as well as to test the hypothesis regarding the important role of cruise tourism on regional and local economic development of destinations.

II. RESEARCH METHODOLOGY

In accordance with the objectives of the research, the hypotheses were tested:

- I1: the share of cruise tourism among other forms of tourism is increasing
- I2: cruise tourism plays an important role in the economic development of destinations.

To test these hypotheses, the main source of data was the World Tourism Organization, UNWTO Tourism Statistics Database (DBWTO, 2023), as well as the Methodological Notes to the Tourism Statistics Database (MNWTO, 2022), the data series available at the time of research covering the period 1996 – 2022. Considering that the Covid-19 pandemic reduced tourist traffic to almost zero in 2020 and drastically limited that of 2021, the period 1996 – 2019 was chosen for the research carried out.

To facilitate the analyses, the cruise tourism destinations were organized into nine groups: Insular Central America, Continental Central America, Europe, North America, Asia, Oceania, New Zealand, Africa and South America.

Given that the data series are time series, polynomial shape evolution models were tested:

$$f(t) = a_0 + \sum_{i=1}^{n} a_i \cdot t^n + \varepsilon \qquad [1]$$
$$i \in [t_{1996} = 1, t_{2019} = 24]$$

To determine and analyze the trend and cyclical components of the functions $f(t)$, the Hodrich-Prescott Filter was used. The main software tool used was EViews.

Testing the statistical significance of the parameters of the linear forms of the functions $f(t)$ the bilateral t-test was used, and for its higher orders the determination coefficient R^2 was used. Mainly, the confidence level of the statistical tests was 95% (α=0.05) and only in some cases 90% (α=0.10).

III. RESULTS AND DISCUSSION

At its peak in 2019, cruise tourism recorded 27.5 million passengers, 179.7 million (cruise) bed-days, 1.17 million full-time jobs and $150 billion in benefits direct, indirect and induced economic (Papathanassis, 2022). Unfortunately, during the Covid-19 pandemic, their number practically decreased to values close to zero.

Several factors can favor or hinder the development of cruise tourism in a particular destination. Research in the field has drawn attention to the important link between the characteristics of the port city/destination and the development of cruise tourism in that area (Henry, 2012).

The important characteristics for tourists of a port city include elements regarding its geographical location, climate attributes, infrastructure, efficient management of a large flow of tourists, cultural-historical base and, on the other hand, the characteristics important for cruise services that are related to technical facts, such as ship piloting capacity, ship maintenance/serviceability, fuel supply, rescue systems at sea, but also the regulatory framework (incentives for cruise companies, policies of tourism, taxation etc.).

According to Peručić, D. & Greblički, M. (2022), other factors influencing cruise demand were: development of national cruise brands, diversification of tourist packages, popularization of cruise vacations in new markets, more ships and ports of embarkation in all regions, especially in developing regions and markets and the emergence of new shipping regions.

All these features must come together in an attractive destination to attract the interest of cruise companies, for whom the inclusion of new ports in their itineraries would be an advantage in attracting tourists, but only if they believe that those ports will generate additional income (Brida & Zapata A, 2010).

An important role in increasing the demand for cruises in new markets was played by the number of cruise ships in the region, as well as the adaptation of products to the needs of new source markets and different market segments (Peručić & Greblički, 2022).

3.1. An overview

In general, during the period 1996-2019, cruise tourism had an upward evolution in all the main groups of destinations (Figure 1). Among them, the first place was Insular Central America (ICA) with an almost perfectly linear growth (R2=0.9821) of 530 thousand visitors annually, reaching from 10444 thousand visitors, in 1996, to 22110 thousand visitors, in 2019 (an increase of 2.31 times).

Linear upward trends were also recorded in destinations in Continental Central America (CCA) with an increase of 182 thousand visitors annually (R2=0.9384), from 2693 thousand visitors in 1996 to 3844 thousand visitors in 2019 (an increase 17.82 times), Europe with an increase of 384 thousand visitors annually (R2=0.8772), from 760 thousand visitors, in 1996, to 10020 thousand visitors, in 2019 (an increase of 13.18 times), as well as in destinations from Oceania, with an increase of 42.8 thousand visitors annually (R2=0.8482), from 131 thousand visitors, in 1996, to 674 thousand visitors, in 2019 (an increase of 5.15 times)

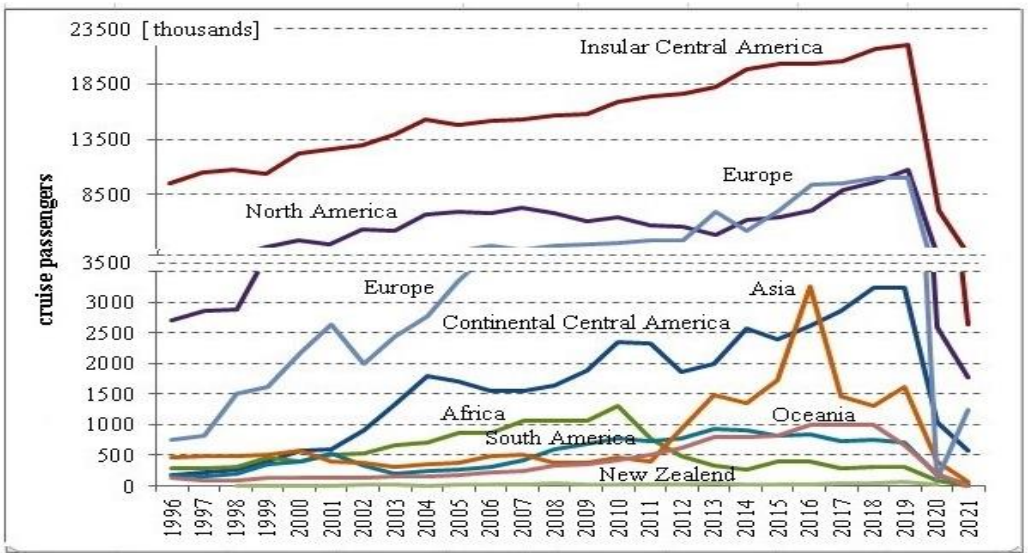

Figure 1. *Evolution of the number of arrivals of cruise tourists on the main groups of destinations.*
Source: prepared by the authors after UNWTO.

Significant evolutions, oscillating around an increasing trend, were recorded in destinations from North America and Bermuda Islands. In their case, after an upward evolution from 1996 until 2007, when

7297 thousand cruise tourists are registered, there follows a period of decline, determined by the significant reduction of their stays in Mexico, so that, in 2013, the number of cruise tourists reaches a minimum of 4895 thousand. After 2013, there is a revival, in 2019, 10,696 thousand visitors were registered, 3.97 times more than in 1996.

A special evolution is recorded in terms of Asian destinations. From the beginning of the period included in the analysis until 2011, approximately 500 thousand cruise tourists arrived annually in Asian destinations. After 2011, as a result of the emergence of new destinations, their number began to increase. One of the new destinations was the Republic of Korea, which initially attracted a particularly large number of visitors. In 2016, of the 3247 thousand cruise tourists, 2258 thousand (69.54%) arrived in Korea. After 2016, their number decreased drastically, reaching 207 thousand in 2019, which led to the reduction of the total number of cruise tourists arriving in Asia to 1612 thousand.

From the point of view of the share of cruise tourism in total tourist arrivals worldwide, it has evolved from 4.8% in 1996 to 7.7% in 2019, representing its position among other forms of tourism (Table 1).

In terms of destinations, in 1996, the first place was Insular Central America with a weight of 41.3% in the total arrivals in this destination, followed at a great distance by Oceania with a weight of 8.5% in the total arrivals.

The significant increase in tourists' preferences for cruise tourism has led to significant increases in its shares in the total number of arrivals in the respective destinations, so that in 2019 significantly high shares were recorded in Insular Central America (47.1%), Continental Central America (28.7%) and Oceania (26.5%), destinations for which cruise tourism has a particular impact on economic development.

Table 1. Share of cruise tourism in total tourist arrivals, worldwide.

Destination	1996	2004	2013	2019
Total croziers	4.8	6.9	7.1	7.7
Insular Central America	41.3	47.1	46.9	47.1
Continental Central America	7.6	30.7	22.3	28.7
Europe	0.8	1.7	3.1	4.0
North America	2.0	4.8	4.7	8.2
Asia	1.6	0.7	1.6	1.0
Oceania	8.5	10.8	33.8	26.5
New Zealand	0.0	0.4	1.3	1.5
Africa	3.7	4.8	2.6	2.0
South America	4.0	4.5	8.2	5.2

Source: prepared by authors based on DBWTO.

Important increases, especially by the volume represented by each percentage point, also took place in Europe, from 0.8%, in 1996, to 4.0%, as well as in North America, from 2.0%, in 1996, to 8.2%, in 2019, as well as in New Zealand, from 0.4, in 2004, to 1.5%, in 2019.

After 2019, with the outbreak of the Covid-19 pandemic, cruise tourism in all nine groups of destinations was reduced to almost zero.

3.2. Insular and Continental Central America

Some of the most popular destinations for cruise tourism are in Insular Central America (ICA), which in 1996 included 20 destinations (Table 2).

From 1996 until the outbreak of the Covit-19 pandemic, in the vast majority of them the intensity of tourist flows increased continuously, on a linear trend, hypothesis accepted with a confidence level of 95% (α=0.05) for 13 destinations (Table 2), as well as with a confidence level of 90% (α=0.10) for Puerto Rico and Barbados.

With the exception of Cuba, where, compared to the other destinations, cruise tourism was insignificant, in 2019 the number of cruise tourists was higher than in 1996, with the evolution of tourist flows going through either highs or lows. Eloquent, from this point of view, are the evolutions in the US Virgin Islands and Guadalupe (Figure 2).

Table 2. Cruise passengers per destination of ICA and the characteristics of their evolutions.

% in arrv	Destination	Cruise passengers [thousands]			a_1 [th.]	Sig.
		1996	2008	2019		
Peste70%	Bahamas	1686	2861	5433	154.8	0.000
	Cayman Islands	800	1553	1831	34.6	0.001
	Saint Maarten	657	1346	1632	46.6	0.000
	Dominica	193	386	230	-	-
	Saint Vincent	128	160	313	3.6	0.014
	Saint Kitts and Nevis	86	401	44	44.9	0.000
50%-70%	U.S.Virgin Islands	1316	1757	1433	-	-
	Grenada	267	293	338	4.73	0.006
	Haiti	250	500	652	25.7	0.000
	Saint Lucia	180	620	787	19.6	0.000
	Curaçao	173	353	810	22.8	0.000
	BritishVirginIslands	160	572	575	15.6	0.001
30%-50%	PuertoRico	1045	1497	1751	8.3	0.078
	Jamaica	658	1092	1553	45.5	0.000
	Guadeloupe	611	115	320	-	-
	Barbados	510	597	443	4.1	0.057
	Martinique	408	87	285	-	-
	Aruba	316	556	832	19.6	0.000
	DominicanRepublic	111	475	30.5	30.5	0.000
	Cuba	2	5	0	-	-

Source: prepared by authors based on DBWTO.

They highlight the fact that, during the analyzed period, there were some changes and compensations between destinations, without overall influencing the upward evolution of the number of cruise tourists from Central America.

In this region, the most significant annual increases were recorded in the Bahamas (154.8 thousand tourists), Saint Maarten (46.6 thousand tourists), Jamaica (45.5 thousand tourists) and Saint Kitts and Nevis (44.9 thousand tourists), so that if in

In 1996, over one million cruise tourists arrived in only three destinations (Bahamas, US Virgin Islands and Puerto Rico), in 2019 their number had reached six (Bahamas, Saint Maarten, Cayman Islands, US Virgin Islands, Puerto Rico and Jamaica).

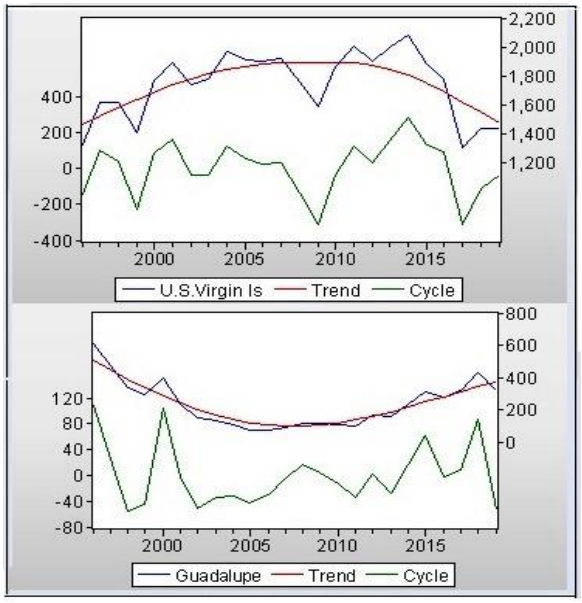

Figure 2. *Evolution of the number of cruise tourist arrivals in the US Virgin Islands and Guadeloupe.*
Source: prepared by authors using EViews.

On the other hand, a very important aspect to emphasize is that, out of the 20 destinations analyzed, in six of them the share of cruise tourist arrivals in the total arrivals is over 70%, and in six other destinations it falls between 50 % and 70%, highlighting the particularly important role of cruise tourism for their economies.

After the year 2000, three more destinations of the United Kingdom were added to the destinations in Insular Central America: Montserrat (2001), Anguilla (2004) and Turks and Caicos Islands (2008), so that, after the exit of Cuba, in 2019, it reached to 22 destinations for cruise tourism.

In terms of cruise tourism in Continental Central America (ACC), the numbers are much more modest. Four destinations were registered in this region in 1996: Honduras, Belize, Costa Rica and Panama, to which Nicaragua was added in 2000.

Between 1996 and 2019, increases in the number of cruise tourists were recorded in all destinations (Figure 3), followed by a collapse, with the outbreak of the Covid-19 pandemic.

In all destinations in this region, the increases were linear, continuous and without significant disturbances, a fact underlined by the Sig values. (Table 3). With the exception of Costa Rica for which the confidence level is 90%, for the others the confidence level was 99% (Sig.<α=0.001).

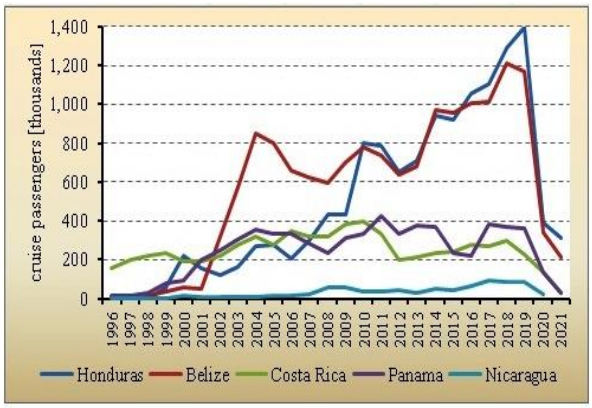

Figure 3. *Cruise tourism developments in Continental Central America.*
Source: prepared by authors.

The largest estimated annual average increases were recorded in Honduras (58.9 thousand tourists), and Belize (50.8 thousand tourists), destinations where, in 2019, more than 1 million cruise tourists were registered. Also, considering the large shares of cruise tourists in total arrivals, 69.9% in Belize and 60.3% in Honduras, it shows that for them cruise tourism has a particularly important role in regional development.

Table 3. Cruise passengers per destinations of CCA and the characteristics of their evolutions.

Destination	Cruise passengers [thousands]			a_1 [th.]	Sig.	% in total arrvs
	1996	2008	2019			
Honduras	8	434	1395	58.9	0.000	60.3
Belize	1	597	1171	50.8	0.000	69.9
Costa Rica	159	320	227	2.8	0.098	6.8
Panama	14	234	365	13,5	0.000	14.6
Nicaragua	0	60	86	3.8	0.000	5.9

Source: prepared by authors.

For Costa Rica and Nicaragua, the shares of cruise tourists in total arrivals, 6.8% in Costa Rica and 5.9% in Nicaragua, show that its impact on regional development is much lower compared to other forms of tourism.

3.3. Cruise tourism in Europe and North America

Tourism in Europe, in all its forms, experienced and continues to experience a special development. In this context, although cruise tourism has a relatively smaller share in total arrivals, but, by its volume, it ranks next to that of North America, in second place after that of Central Insular America (Table 4).

Except for Cyprus, between 2000 and 2019, for a confidence level of 95%, the trends in the number of cruise tourists are predominantly linear, the flow with the highest intensity being recorded in Greece, with an estimated average annual increase of 135.2 thousand tourists.

Table 4. Cruise passengers per destinations of Europa and the characteristics of their evolutions.

Destination	Cruise passengers [thousands]			a_1 [th.]	Sig.	% in total arrvs
	2000	2013	2019			
Latvia	36	258	800*	16.4	0.027	10.2*
Lithuania	5	33	75*	1.7	0.038	1.3*
Cyprus	135	207	112	-	-	2.8
Estonia	109	509	660	27.2	0.000	10.8
Greece	472	2192	2656	135.2	0.001	7.8
Iceland	25	92	189	6.7	0.000	8.6
Malta	171	431	766	23.5	0.000	21.8
Monaco	76	245	182	7.2	0.008	-
Norway	770	620	901	18.5	0.019	-
Denmark	363	619	990	23.9	0.000	-

***** value recorded in the previous year

Source: prepared by authors.

Flows of cruise tourists, which led to the registration of significant shares of them in the total arrivals, were registered in Malta (23.5 thousand tourists annually), Estonia (27.2 thousand tourists annually) and Latvia (16.4 thousand tourists annually). Thus, the shares of cruise tourists in total arrivals represented in 2019, 21.8% in Malta and 10.8% in Estonia, respectively 10.2% in Latvia, value corresponding to 2018.

As can be seen from table 4, the evolution of the number of cruise tourists in Cyprus differs from linearity. This fact is also highlighted by the evolution presented in Figure 4.

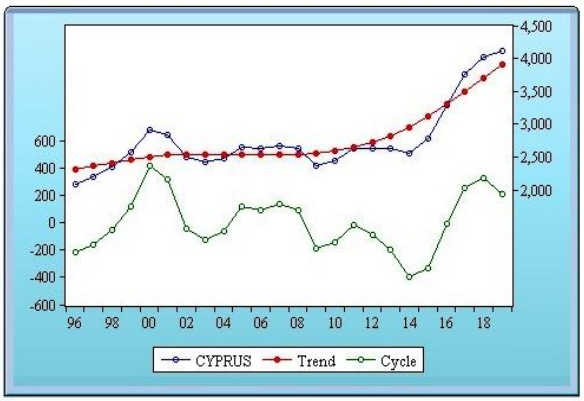

Figure 4. *Evolution of the trend and cycle components of cruise tourism evolution in Cyprus.*

Source: prepared by the authors using EViews.

Thus, over a trend consisting of a part with very slow growth, from the period 1996 - 2011, and a part with significant growth, from the period 2012 - 2019, a cyclical evolution is superimposed with a period of approximately 6 years, with maxima in 2000, 2006, 2011 and 2018 and with lows in 2003, 2009 and 2014.

To the European cruise tourism destinations analyzed above, after the year 2000, San Marino (in 2011) and Spain (in 2016) were added. Unlike San Marino where the number of cruise tourists did not exceed 4 thousand, in Spain, their number evolved between a minimum of 2924 thousand tourists in 2017 and a maximum of 3564 thousand tourists in 2019.

Also, in Europe there were, in certain time intervals, two destinations for cruise tourism, namely the Russian Federation and Sweden. In the Russian Federation, data on cruise tourism have been recorded since 2001, when 175 thousand tourists were registered. Their number gradually increased, reaching 1670 thousand tourists in 2015, the year in which it stopped, a fact also determined by the invasion of the Crimean peninsula by Russia.

For Sweden, the available data on cruise tourism covers only the period 2011 - 2014, being recorded between a minimum of 223 thousand tourists in 2011 and a maximum of 467 thousand tourists in 2014.

Unlike Europe, in North America the cruise tourism destinations for which data were available were Canada, Mexico and the Bermuda Islands, of which only Mexico and the Bermuda Islands have data for the entire analyzed period.

The evolution of the number of cruise tourists arriving in Bermuda between 1996 and 2019 was upward, from 182 thousand tourists in 1996 to 536 thousand tourists in 2019, with an average annual increase of 13.9 thousand tourists and a polynomial rate of degree two (Table 5), the coefficient of determination R2=0.892 highlighting a good approximation of the real evolution. A cyclical component (Figure 5) with an oscillation period of approximately 5 years and more evident between 2004 and 2013 was superimposed on this trend.

Table 5. Cruise passengers per destinations of America de Nord and the characteristics of their evolutions.

Dest.	Passengers [thousands]		Trend parameters					% in total arrvs
	1996	2019	a_0	a_1	a_2	a_3	R^2	
Canada	369	1066	-	-	-	-	-	3.3
Mexico	2142	9095	-532	1402	9.4	2,8	0.853	9.4
Bermuda	182	536	158	7.97	66.6	-	0.892	66.6

Source: prepared by the authors.

In the case of destinations in Mexico, the number of cruise tourist arrivals increased from 2142 thousand, in 1996, to 9095 thousand, with an average annual increase of 216.5 thousand tourists and a polynomial step of the third degree (Table 5), for which the coefficient of determination is R2=0.853. The cyclical component (Figure 5) superimposed on this trend has an oscillation period of approximately 15 years, being three times longer than in the case of the Bermuda islands.

Regarding cruise tourism in Canada, the data series are incomplete, covering only the periods 1996 – 2000 and 2017 – 2021, far too few to provide a conclusive picture of the period leading up to the

Covid-19 pandemic. It should be noted, however, that in 2019, 1,066 thousand cruise tourists were registered, 2.89 times more than in 1996.

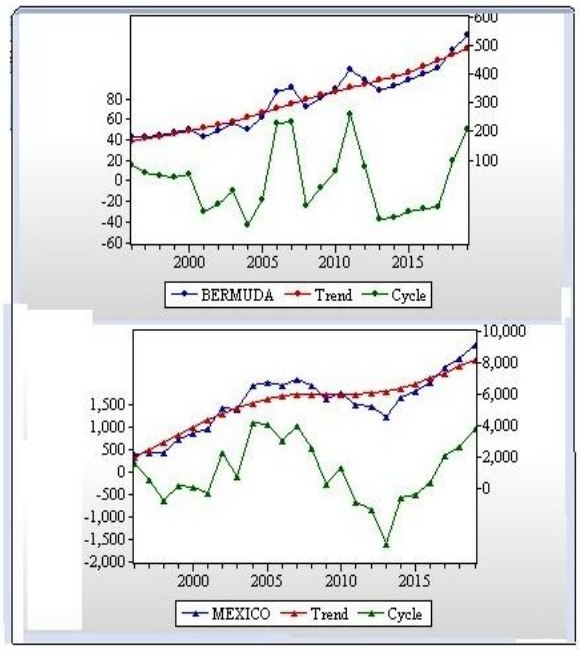

Figure 5. *Trend and Cycle functions of cruise tourist arrivals in Bermuda and Mexico*.
Source: prepared by the authors using EViews.

From the point of view of the weight of the arrivals of cruise tourists, in the total of arrivals, it should be emphasized that the weight of 66.6%, in the case of the Bermuda islands, highlights the very important place of this form of tourism for the regional and local development of this destination. In the case of the destinations Mexico and Canada, the weights are much lower, but significant, especially for Mexico (9.4%).

3.4. Cruise tourism in Asia, Oceania and New Zealand

Cruise tourism with destinations in Asia has seen a diversity of developments. In 1996, six destinations were registered in the database of the World Tourism Organization: Vietnam, Hong Kong, India, Jordan, the Philippines and Israel, which were joined by the Maldives in 2000. In the second decade of the 21st century, new destinations appear: Oman (2012), the Republic of Korea (2013), Madagascar, Bahrain, the United Arab Emirates (2015) and Brunei Darussalam (2016), so that in 2019 there were recorded arrivals of cruise tourists in 13 destinations.

Of the six destinations, existing since 1996 (Table 6), only in three, the Philippines, Hong Kong and Jordan, smooth evolutions were recorded, without significant disturbances, a fact highlighted by their upward linear trends, practically for a level of confidence of 99% (α=0.01). For India, after an increase from 20 thousand cruise tourists in 1996 to 179 thousand in 2006 and a reduction to 105 thousand cruise tourists in 2010, the data series breaks between 2011 and 2018.

Table 6. Cruise passengers per destinations of Asia and the characteristics of their evolutions.

Destination	Cruise passengers [thousands]				a_1 th]	Sig.	% in total arrvs
	1996	2012	2016	2019			
Vietnam	162	286	285	264	-	-	1.5
Hong Kong	7	39	109	123	4.3	.000	0.2
India	20	0	0	13	-	-	0.1
Jordan	16	85	56	95	3.4	.000	1.8
Philippines	10	11	72	162	5.4	.001	
Israel	260	251	75	94	-	-	1.9
Maldives	0	9	0	0	-	-	0.0
Oman	0	257	217	283	-	-	8.1
Korea	0	0	2258	279	-	-	1.6
Madagascar	0	0	40	102	-	-	21.0
Bahrain	0	0	56	134	-	-	1.2
UAE	0	0	54	48	-	-	0.2
Brunei	0	0	25	15	-	-	0.4

Source: prepared by the authors.

For the other two destinations (Vietnam and Israel) the trends are oscillating (Figure 6), with the difference that, while for Vietnam the trend is increasing, for Israel it is decreasing.

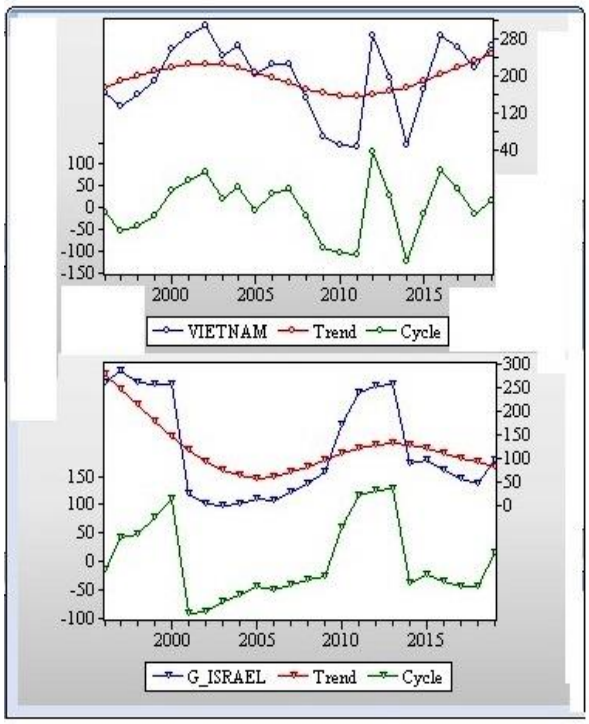

Figure 6. *Trend and Cycle functions of the evolution of cruise tourism in Vietnam and Israel.*
Source: prepared by the authors using EViews.

Another difference results from the analysis of the form of the Cycle function. For the destination Israel, two cycles with a period of approximately 12 years are clearly highlighted, while for the destination

Vietnam a predominantly irregular behavior is described.

In the case of destinations that entered cruise tourism after 2010, the data series are short and very short to highlight a certain type of behavior.

Regarding the share of cruise tourism in the total arrivals in Asian destinations, included in the analysis, with the exception of Madagascar where it is 21.0%, highlighting a significant impact on regional development, as well as Oman where the share is 8.1%, for the other destinations, cruise tourism has a low economic impact compared to other forms of tourism.

Oceania, with its exotic islands, is also frequented destinations in cruise tourism. In 1996, according to the database of the World Tourism Organization, five destinations were registered, of which three were in Melanesia (Fiji, New Caledonia and Vanuatu) and one each in Micronesia (Northern Mariana Islands) and in Polynesia (Tonga). American Samoa from Polynesia was added to them in 2000 and Papua New Guinea from Melanesia in 2008. Also, in the period 2016-2017, arrivals of cruise tourists were recorded in the Marshall Islands.

From the analysis of the data series corresponding to the flows of cruise tourism in Oceania, it emerged that its evolution during the period 1996-2019 was characterized by linear trajectories without significant disturbances (Table 7), a fact underlined by the values of the parameter Sig.<α=0.05.

Table 7. Cruise passengers per destinations of Oceania and the characteristics of their evolutions.

Destination	Cruise passengers [thousands]				a_1 [th]	Sig.	% in total arrvs
	1996	2008	2016	2019			
Fiji	17	42	171	75	6.9	.000	7.7
New Caledonia	46	152	509	344	22.1	.000	72.6
Vanuatu	56	106	256	135	9.9	.000	52.9
Northern Maiana Is.	8	9	5	3	-0.3	.000	0.6
Tonga	4	15	28	27	0.8	.000	28.4
American Samoa	0	0	18	39	1.6	.000	67.2
Papua New Guinea	0	6	19	51	4.5	.001	24.2
Marshall Is.	0	0	1	0	-	-	0.0

Source: prepared by the authors.

With one exception, the Northern Mariana Islands, for which the regression coefficient $a_1 = -0.3$ means an average reduction in the number of cruise tourist arrivals in this destination with 300 tourists annually, in all other destinations, the developments are positive.

The most significant increase in cruise tourist arrivals was recorded in New Caledonia, with an average annual increase of 22.1 thousand tourists, followed by Vanuatu, with 9.9 thousand tourists, and Fiji, with 6.9 thousand tourists annually.

From the point of view of the share of cruise tourism in total tourist arrivals, the highest share is also recorded in New Caledonia (72.6%). Significantly large shares were also registered in American Samoa (67.2%), Vanuatu (52.9%), Tonga (28.4%) and Papua New Guinea (24.2%). For all this, the role of cruise tourism in regional development is particularly important.

Table 8. Cruise passengers per destination of New Zealand and the characteristics of their evolutions.

Destination	Passengers [thousands]		Trend parameters				% in total arrvs
	1998	2019	a_0	a_1	a_2	R^2	
New Zealand	10	56	10.5	0.12	0.07	0.791	1.5

Source: prepared by the authors.

The first data on cruise tourism to New Zealand were recorded in 1998 and refer to 10 thousand tourists. Between 1998 and 2019, the number of cruise tourists increased continuously, reaching 56 thousand tourists in 2019 (Table 8), with an average annual increase of 2.3 thousand tourists.

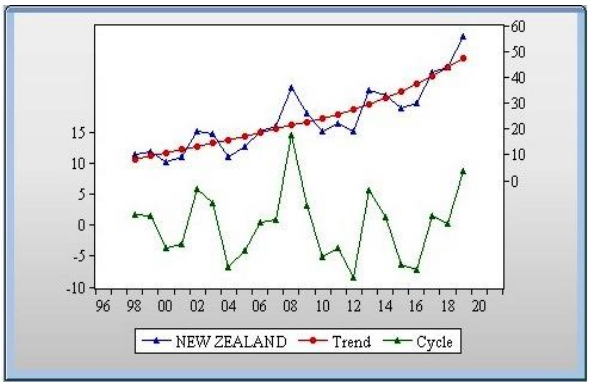

Figure 7. *Trend and Cycle functions of the evolution of cruise tourism in New Zealand.*
Source: prepared by the authors using EViews.

The trend of the data series is parabolic over which a cyclical component has been superimposed (Figure 7) with an oscillation period of approximately 6 years. The largest positive amplitude was recorded in 2008, with 14.5 thousand tourists above the trend, and the largest negative amplitude in 2012, with 8.4 thousand tourists below the value corresponding to the trend function.

3.5. Cruise tourism in Africa and South America

Unlike other cruise tourism destinations, in African destinations the evolutions of the number of arrivals of cruise tourists are very fluctuating with relatively large amplitudes, superimposed on ascending and descending trends, as well as with significant differences between the intensities of tourist flows (Figure 8). Because of this, as well as incomplete data at some destinations, evolution

models could not be identified for a 95% confidence level.

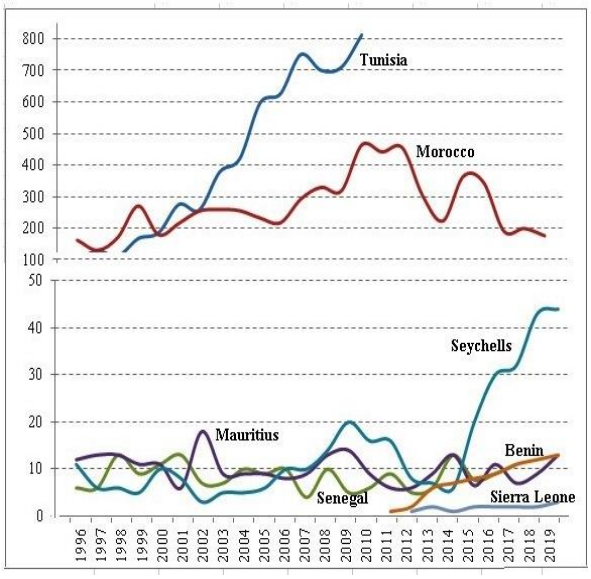

Figure 8 – *Cruise tourism evolutions in Africa*.
Source: prepared by the authors using EViews.

In the first part of the analyzed period, i.e. between 1996 and 2010, the highest intensity of the flow of cruise tourists was recorded in Tunisia, from 101 thousand tourists in 1996 to 812 thousand tourists in 2010, which corresponds to an average annual increase of 50.78 thousand tourists. However, after a reduction of 2.78 times in 2011, starting from 2012 no more arrivals of cruise tourists are registered in Tunisian destinations. Practically, this development led to the cancellation of the contribution of cruise tourism to the economic development of Tunisia.

Among the destinations in Africa for cruise tourism, depending on the number of arrivals, is Morocco. After an increase from 163 thousand tourists, in 1996 (Table 9), to 464 thousand tourists, in 2010, there was a period of decline, so that in 2019 only 177 thousand cruise tourists were registered. This also led to a significant decrease in the share of cruise tourism in total arrivals, from 5.71% to 1.35%, in 2019 (a reduction of 4.36 percentage points).

Table 9. Cruise passengers per destinations of Africa and the weights in total arrivals.

Destination	Cruise passengers [thousands]				% in total arrivals		
	1996	2010	2014	2019	1996	2010	2019
Tunisia	101	812	0	0	2.53	9.40	0.00
Morocco	163	464	224	177	5.71	4.76	1.35
Senegal	6	6	13	0	-	0.66	0.00
Mauritius	12	9	13	13	2.36	0.94	0.92
Seychelles	11	16	6	44	7.75	8.38	10.28
Benin	-	-	7	13	-	-	3.86
Sierra Leone	-	-	1	3	-	-	4.23
Reunion	-	-	-	68	-	-	11.31

Source: prepared by the authors.

Along with Morocco, Mauritius and Seychelles are the only destinations for which cruise tourist arrivals were recorded in the entire analyzed period, but the recorded values are much lower. In Mauritius, the number of cruise tourists fluctuated around 12 thousand tourists. It should be noted, however, that their share in total arrivals decreased from 2.36% in 1996 to 0.92% in 2019, which means that other forms of tourism developed here more quickly. In Seychelles, after a very winding evolution, from 11 thousand tourists in 1996, after a significant increase starting in 2015, it reaches 44 thousand tourists in 2019. For Seychelles, the 10.28% share of cruise tourism in total arrivals highlights the importance of this form of tourism on economic development.

Senegal, although it is a destination where arrivals of cruise tourists have been recorded almost throughout the period, this form of tourism is little represented, both by the number of tourists and by the share of less than 1% in total arrivals.

Towards the end of the analyzed period, in Africa, arrivals of cruise tourists were recorded in three destinations: Benin, Sierra Leone and Reunion. Their shares in total arrivals highlight the importance of cruise tourism for their economic development, especially in Reunion (11.31%).

Regarding cruise tourism in South America, from the point of view of the arrivals of cruise tourists, the characteristics of their evolution are similar to those in Africa, with relatively large amplitude oscillations (Figure 9) and with significant increases and decreases from one period to another. Because of this, as in the case of destinations in Africa, no patterns of evolution could be identified for a 95% confidence level.

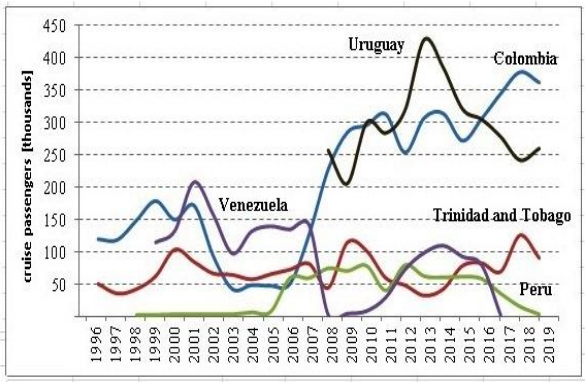

Figure 9. *Cruise tourism evolutions in South American destinations.*
Source: prepared by the authors using EViews.

Among the five destinations, only for Colombia and Trinidad and Tobago, cruise tourism is present throughout the analyzed period, for Peru the data series start in 1998, for Venezuela, in 1999 and up to 2017, and for Uruguay, in 2008.

The most significant developments, from the point of view of the intensity of the flows of cruise tourists, were observed in Colombia and Uruguay (Table 10).

Table 10. Cruise passengers per destinations of South America and the weights in total arrivals.

Destination	Cruise passengers [thousands]				% in total arrivals		
	1996	2005	2013	2019	1996	2013	2019
Colombia	120	48	307	362	15.9	11.8	7.9
Trinidad and Tobago	51	66	33	91	16.1	7.8	18.9
Peru		8	63	4			
Venezuela		140	99			9.1	
Uruguay			428	260		13.2	7.5

Source: prepared by the authors.

The evolution of cruise tourism in Colombia is characterized by three periods. A first period in which the number of tourists increases from 120 thousand in 1996 to 179 thousand in 2003, followed by a period of regression to 43 thousand tourists in 2003 and 48 thousand tourists in 2005, followed by a period of growth reaching 307 thousand tourists in 2013, and 362 thousand tourists in 2019. On the other hand, although the number of cruise tourists registered in 2013 and 2019 are 2.56 times and 3.02 times higher, respectively, than in 1996, their share in total arrivals drops from 15.9%, in 1996, to 11.8% , in 2013 and at 7.9% in 2019, which means that the rate of development of other forms of tourism was higher than that of cruise tourism.

For Trinidad and Tobago, cruise tourism developments are less spectacular. The number of cruise tourist arrivals has evolved around a slightly upward trend with a slope of 1.1 thousand tourists annually, with highs of 104 thousand tourists in 2000, 115 thousand tourists in 2009 and 126 thousand tourists in 2018 and with lows of 58 thousand tourists in 2004 and 32 thousand tourists in 2013. However, at the end of the analyzed period, in 2019, the share of cruise tourists in the total arrivals in Trinidad and Tobago was 18.9%, 2.8 percentage points higher than in 1996, emphasizing the importance of cruise tourism for the economic development of this destination.

The data series on cruise tourism in Peru highlight two periods. The first period, 1998 - 2005, is characterized by a flow of low-intensity tourists, from 3 thousand in 1998 to 8 thousand in 2005. The second period is an impulse-type evolution characterized by a jump to 60 thousand tourists in 2006, an evolution around a ceiling of 69 thousand tourists until 2016 and a drastic reduction, a collapse, in 2017 and 2018. Regarding the share of cruise tourists in total arrivals, the discontinuity and lack data series prevented its evaluation.

The evolution of cruise tourism in Venezuela, the fourth destination in South America, is characterized by two jumps, two impulse-type developments separated by a period with very low arrivals, the first in the period 1999 - 2007, in which the number of tourist arrivals from cruise evolves around an average of 140 thousand tourists and the second, during the period 2012-2016 in which the number of arrivals of cruise tourists evolves around an average of 99 thousand tourists..

For Uruguay, the available data series highlight a strong debut of cruise tourism with a number of 257 thousand tourists and an increase with an average annual increase of 34.2 thousand tourists reaching in 2013 a maximum of 428 thousand tourists. After 2013 until 2019, their number gradually decreased, up to 260 thousand cruise tourists in 2019. From the point of view of the share of the number of cruise tourists in the total arrivals in Uruguay, it took values between a maximum of 13.2%, in 2013 and a minimum of 7.5%, in 2019 highlighting, in this case as well, the importance of cruise tourism for the economic development of this destination.

1V. THE ECONOMIC IMPACT OF CRUISE TOURISM

Cruise tourism is today a vital component of local and national economies around the world, generating over 1.17 million jobs in 2019 covering a wide variety of sectors such as: agriculture, retail, hospitality , information services, entertainment, health care, manufacturing of industrial goods, aviation, and of course tourism.

Globally, the cruise industry generates / contributed 150 billion USD in total output worldwide (CLIA, 2020). Unfortunately, the ongoing and voluntary suspension of cruise ship activity since 2020 has had a negative impact on communities and families around the globe. Each day of suspension of cruise tourism operations resulted in the loss of approximately 2,500 jobs, and each 1% decline in cruise industry activity worldwide resulted in the loss of approximately 9,100 jobs (CLIA, 2020).

Expenditure generated by cruise tourism has direct, indirect and induced effects on a destination's economy. The direct effect is imposed on a supplier who sells goods and services directly to cruise ships, cruise passengers or crew members (Brida & Zapata, 2010). Indirect effects are attributed to cruise ship expenses and include port costs, marine expenses, food and beverage, fuel, water or maintenance. Cruise passenger expenses include those not part of the cruise itself, such as taxis, destination excursions, souvenirs, food and beverages, etc. The induced effects arise from the expenditure of direct and indirect beneficiaries produced from their increased income.

According to CLIA (2020), the direct economic impact of the US cruise industry in 2019 (Table 11) was represented by Direct Cruise Industry Expenditures (DCIE) of USD 25.14 billion and wages and salaries (WSD) of USD 8.75 billion, to a number of employees (EMPL) of 178,148 people, the total economic impact being realized in a Total Output (TO) of USD 55.4 billion (an increase of 31.2% compared to 2012) which generated just over 436,600

jobs across the country, paying a total of over $24 billion in wages and salaries (WST). At the same time passengers sourced from the U.S. (PSUS) increased from 10.67% to 14.20%.

Table 11. The Economic Impact of Cruise Industry Expenditures in the U.S. 2012 – 2019.

	2012	2014	2016	2018	2019
PSUS	10.67	11.33	11.50	13.09	14.20
Direct Economic Impacts					
DCIE($B)	$19.63	$21.02	$21.69	$23.95	$25.14
Empl	146,785	152,272	158,226	172,326	178,104
WSD	$ 6.39	$ 7.02	$7.38	$8.32	$8.75
Total Economic Impacts					
TO($B)	$42.27	$46.09	$47.76	$52.67	$55.46
Empl	356,311	373,378	389,432	421,711	436,611
WST($B)	$17.42	$19.43	$20.57	$23.15	$24.40

Source: Prepared by the authors after CLIA 2020; Business Research & Economic Advisors..

This total economic impact affected virtually every industry in the US: consumer goods manufacturing, professional and technical services, travel services, durable goods manufacturing, financial services, air transportation, and wholesale trade. The economic contribution of the cruise industry also depends on the port category (Figure 10), port of origin or a port of call. A port of origin is a destination from which cruise ship itineraries begin and end, while a port of call is merely an intermediate stop where a cruise ship passenger spends less than ten hours in such port. The cruise business, in a home port like Miami (Florida), Long Beach (California), among others, has a direct impact on almost every segment of the travel industry: transportation, hotels and resorts, restaurants, attractions, etc..

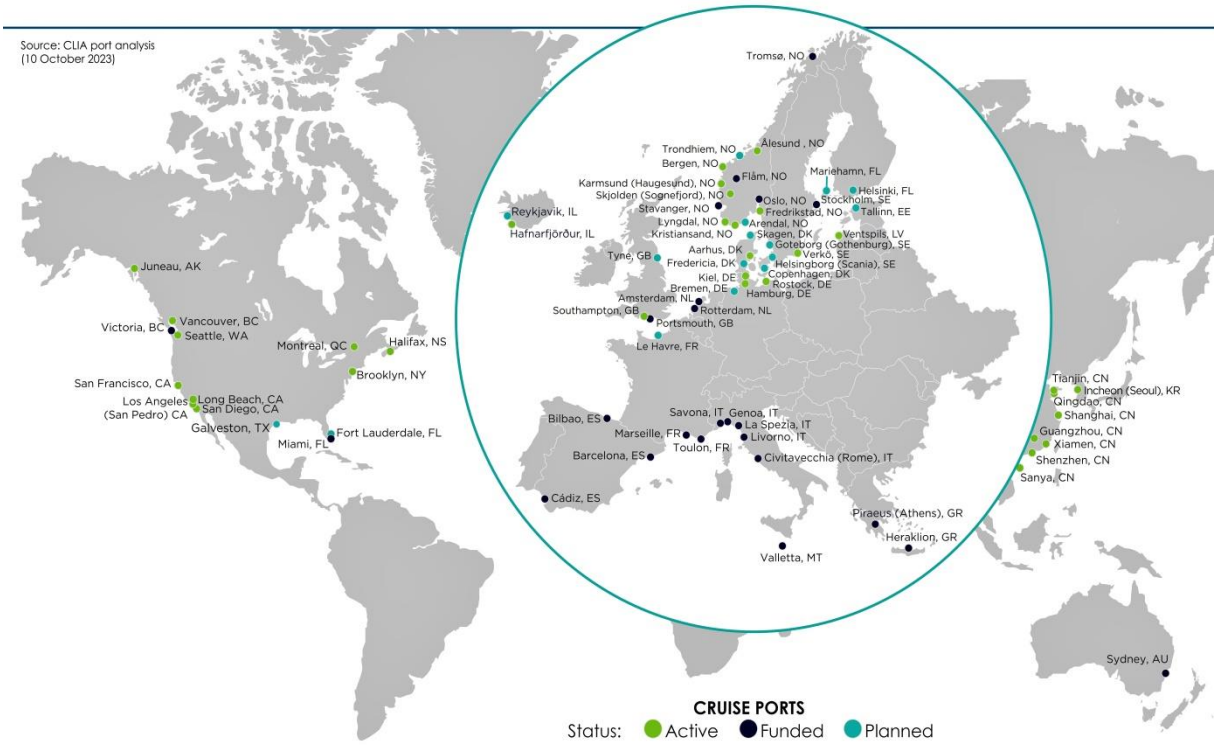

Figure 10. *Ports with at least one berth with onshore power supply for cruise ships. Status: Active (29), Funded (8), Planned (19) - As of April 2023.*

Source: CLIA (2023).

Among the reasons that can explain the spectacular growth of cruise tourism and implicitly its economic impact, we can mention the price of the packages. The average price per day for a cruise product has decreased remarkably over the last three decades (Vogel & Oschmann, 2012). Thus, cruise lines have designed short-term cruises of two or three nights where tourists can take a cruise ship from Miami to the Bahamas or from Barcelona to Palma (Majorca). These types of cruises are aimed at a younger and more active potential clientele.

The number of passengers embarked at US ports increased from 10.1 million in 2012 to 13.8 million in 2019, a 37% increase (CLIA, 2020). In previous years, there have been significant variations in the number of embarkations at United States cruise ports. The top ten ports of embarkation for US cruise ships are shown in Figure 11. Leading the way is the state of Florida, with a share of passenger embarkations of about 60% of the US total, thanks to the ports of Miami (3.4 million embarkations in 2019) and Port Canaveral (2.2 million boardings) joined by

Port Everglades, Tampa and Jacksonville (CLIA, 2020).

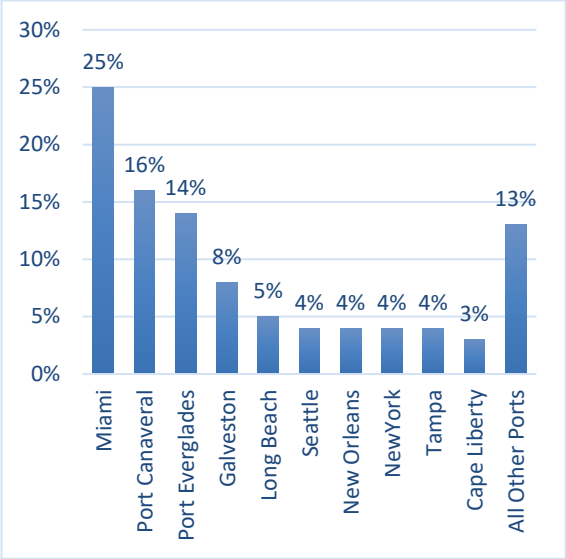

Figure 11. *Distribution of U.S. embarkations – 2019*.
Source: CLIA (2020).

In the main outbound markets for cruise tourism, there is an obvious interdependence between economic development and demand for cruise tourism. Between 1980 and 2017, the demand for cruises experienced an annual growth rate of 7.5%, while the number of tourists increased by only 4.9% (Peručić, 2020). The top passenger-emitting region was North America, with 51% of the market share in 2019. Although North American cruise passenger numbers have increased over the years, the region's relative share of the total market has declined considerable. The second most important passenger source region was Europe, with a 26% market share in 2019. The biggest changes between 2013 and 2019 were in Asia, where the market share doubled in just six years - from 6% in 2013 to 12% in 2019 (CLIA, 2020).

The market share of the top five passenger issuing markets worldwide in 2019 was 74%. Almost half of cruise passengers were from the US (48%). By number of passengers, the second market was Germany with a market share of 9%, followed by Great Britain with 7%, China with 6% and Australia with 4% (Peručić & Greblički, 2022).

Average age of cruise tourist is 47.6 years (CLIA, 2020). The share of average ages of tourists on board cruise ships in the period 2018-2020 are presented in Figure 12. Passengers aged 60 and over have a share of 33%, followed by those aged 40-59 (32%) , respectively by those aged 20-39 (20%) and a share of 14% for passengers younger than 19 (CLIA, 2021).

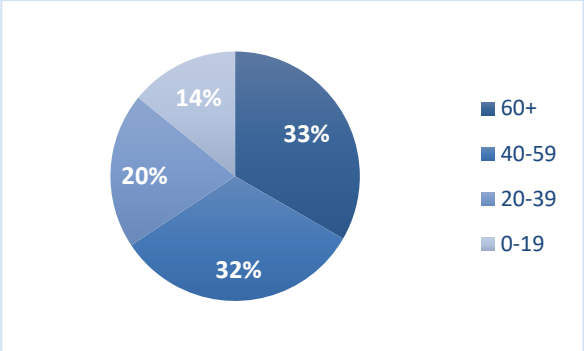

Figure 12. *Cruise tourist age averages from 2018-2020.*
Source: CLIA (2021).

The latest environmental technologies and CLIA's 2020 Practice Report show significant progress in adopting new and innovative practices as the cruise industry continues to explore new ways to increase its efficiency. The cruise ship fleet owned by CLIA received a number of 16 new ships that belong to one of the cleanest and most sophisticated classes of cruise ships (LNG-powered ships, with an average capacity of 2,603 passengers and 100% Wastewater Treatment Systems) (CLIA, 2022).

According to studies conducted by a number of ports around the world and the US Defense Agency, while a ship is in port, connecting to shore power allows the ships' engines to be turned off, reducing emissions by up to 98% in depending on the mix of energy sources used. Shore-side Power – 88% of new build capacity will have or be configured to add this ability.

Of the approximately 100 new ships planned by 2027, one-fifth is LNG fueled, representing 39% of new tonnage and 41% of added accommodation capacity (Papathanassis, 2021).

V. NEW TRENDS IN THE CRUISE INDUSTRY

Cruise tourism currently records certain trends that direct its development (Patiño Romarís et al., 2023). Cruise tourism records for the next period a trend of growth of the cruise fleet, going from 386 ships in 2018 to 472 in 2027 (MedCruise, 2019).

In the "State of the cruise industry 2023" developed by CLIA, several major trends are presented, among which:

- Younger generations are the future of cruise with 88% of Millennials and 86% of Gen-X travelers who have cruised before say they plan to cruise again.
- Achievement over experiences - Experiential travel has evolved into achievement travel as tourists seek experiences beyond sightseeing.
- Smart tech on board - Cruise lines have embraced smart technology to provide

travelers with a highly personalized travel experience while on and off the ship.

- Conscious travel: The cruise industry is more conscientious than ever to minimize its footprint on the environment, destinations and local cultures.
- Access is the new luxury - Travelers have access to remote new destinations, from the Galapagos Islands to Antarctica - that were previously out of reach, but are now accessible thanks to cruise ships.
-

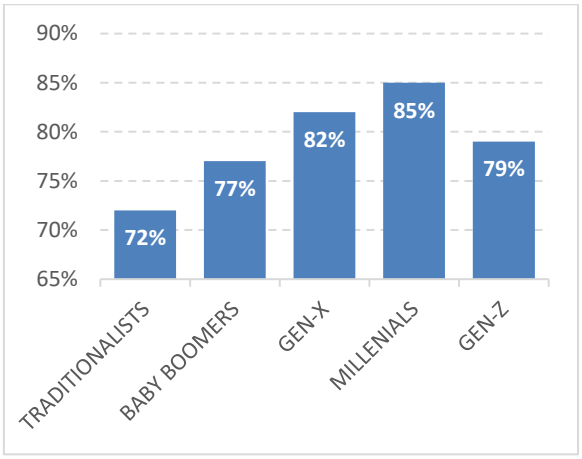

Figure 13. *% of cruise passengers who plan to cruise again.*

Source: CLIA (2021).

- The Millennials generation and the sea - Millennials are the most enthusiastic cruisers of the future (Figure 13). Generation Z and Millennials prefer experiences over material objects and choose sea travel. The appeal of multiple destinations and unique experiences, such as sea music festivals, preferentially polarizes passengers for this new cruise category.
- Cruise and stay - 65% of cruise passengers spend a few extra days at embarkation or debarkation ports.
- The plastic-free passenger - More than eight of ten cruise passengers recycle (82%) and reduce using single-use plastics (80%) while traveling. Seven out of ten cruisers forego plastic straws.
- Generation cruise positive - More than 66% of Generation X and 71% of Millennials have a more positive attitude about cruising compared to two years ago.
- Lone cruisers - Cruise lines are responding to a shift in passenger demographics by offering studio cabins, single friendly activities, eliminating single supplements and solo-lounges.
- Micro travel - Many cruise lines offer bite-sized cruises over a three-to-five-day period offering incredible itineraries and travel to exciting destinations.

VI. Conclusion

Cruising has gone from a niche vacation activity to a mainstream form of vacation. A successful development of the cruise industry is marked by corporate mergers in its field of activity, the launch of megaships, the opening of new destinations, the offer of a wide range of cruise products in order to capture new market segments and the diversification of services for a spectrum wider customer segments.

The cruise industry, like many others, is at a crossroads where it must balance economic growth with the urgent need for sustainable practices.

Tourism plays a significant socio-economic role, especially in the East Asia-Pacific region, the depository of various cultures and traditions with attractive tourism assets, becoming the third tourist pole of cruise tourism after North America and Europe. Thus, from the bipolarity of cruise tourism in the 90s (where North America followed by Europe) we are now reaching the tripolarity of the ocean tourism phenomenon (North America, Europe and East Asia-Pacific).

In terms of passenger destinations and places of origin, the Asian market has considerable potential that should be brought to the surface. This will result in the economic development of the destinations as well as the sustainability of the cruise tourism business.

The contribution to increasing sustainability, both of the environment and of business profitability, was often discussed in the context of the exchange of ideas, concepts; however, the outcome of the study's analyzes suggests the potential to support both societal and economic values through the cruise ship business. Especially in the era where the Sustainable Development Goals are needed, the cruise ship sector must act strategically in improving business sustainability with ethical goals and objectives.

Economic and environmental issues have presented continuous challenges not only to the cruise tourism sector but also to other stakeholders. Environmental and sustainability issues become ever more important than before considering the requirements to implement sustainability goals. Cruise is a model for responsible and sustainable tourism.

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