



Evaluation of cruise tourism economic sustainability. A methodological approach within the Spanish Mediterranean littoral

Evaluación de la sostenibilidad económica del turismo de cruceros. Una aproximación metodológica en el Litoral Mediterráneo español

Dr. Antonio Peláez Verdet is a professor/researcher at the Faculty of Tourism of the University of Málaga (Spain) (apv@uma.es) (<https://orcid.org/0000-0003-2545-5776>).

Pilar Loscertales Sánchez holds a PhD in the Doctorate Program in Economics and Business from the University of Málaga (Spain) (pilar.loscertales@uma.es) (<https://orcid.org/0000-0002-2828-4338>).

Abstract

Cruise tourism is a powerful development agent on the destinations where it is present. It has been largely studied from the customer behaviour point of view. Moreover, its environmental and social sustainability dimensions have been deeply analysed by the literature. However, in spite of a growing number of researches related to its economic impact, no robust conclusion about its economic effect onto destinations has been reached so far. In this work we examine the economic impact of cruise tourism in four different Spanish Mediterranean destinations. For that we use data from EGATUR statistics and financial data from tourism companies in each destination considered. After running curvilinear multivariable techniques, we established a correlation between the cruise traffic and the economic profitability of those enterprises within its scope. Moreover, despite we found no significant correlation with financial profitability, we also found evidence of significant connection between cruise traffic and the employment level of touristic firms affected.

Resumen

El turismo de cruceros es un poderoso dinamizador del turismo en los destinos en los que opera, y ha sido largamente estudiado desde el punto de vista del comportamiento del consumidor. También las dimensiones de la sostenibilidad medioambiental y social de este tipo de turismo han sido analizadas con detenimiento por la literatura. No obstante, y a pesar de un creciente número de investigaciones relacionadas con su impacto económico, no se ha llegado aún a una conclusión robusta sobre el efecto económico neto que tiene sobre los destinos. En este trabajo se estudia el impacto económico del turismo de cruceros en cuatro destinos del mediterráneo español con características distintas, usando datos de EGATUR y datos financieros de las empresas turísticas localizadas en los distintos destinos. Se correlacionaron, aplicando regresiones curvilíneas multivariantes, el tráfico crucerista en dichos destinos con la rentabilidad económica de las empresas bajo su área de influencia, así como su rentabilidad financiera y el número de empleados. Se establecieron, de esta manera, los umbrales en los que se estima que el turismo de cruceros tiene un efecto más beneficioso para la rentabilidad económica de las empresas turísticas que directamente se benefician del tráfico crucerista en destino, sin encontrarse relación con la rentabilidad financiera. También se describe la correlación del movimiento de pasajeros de crucero con el número de empleados declarado por las empresas.

Keywords | palabras clave

Cruise tourism, economic impact, multivariate techniques, Spanish littoral, Mediterranean, Financial performance. Turismo de cruceros, impacto económico, técnicas multivariantes, litoral español, Mediterráneo, desempeño financiero

Suggested citation: Peláez Verdet, A., & Loscertales Sánchez, P. (2018). Evaluation of cruise tourism economic sustainability. A methodological approach within the Spanish Mediterranean littoral. *Retos Revista de Ciencias de la Administración y Economía*, 15(8), 97-110.
<https://doi.org/10.17163/ret.n15.2018.07>

1. Introduction and state of the issue

Cruise tourism is one of the fastest growing segments in the tourism sector in recent years. Despite the economic situation that has taken place in the last decade, according to the Cruise Lines International Association (CLIA, 2016), an increase in the global cruise demand of approximately 62% has been recorded, positioning it as a product in the growth phase, prompting the need to carry out studies that, from a quantitative perspective, allow us to know the importance of this tourist activity in the economic development in the regions where it takes place.

A review of the literature on cruise tourism from an economic perspective reveals the scarce studies on the matter, focusing, in most cases, on the definition of the cruising profile and on the trends of this tourist typology in the medium and long term.

On the other hand, deepening in the studies that address the economic impact of cruises, three points of discussion quickly emerge: The analysis of the economic implications of corporate social responsibility carried out by cruise companies, the study of the patterns of spending related to cruise tourism, and statistical confirmation to know the economic effect of this type of tourism activity in a particular region.

Deepening the existing scientific literature from an economic point of view, it is observed that the first studies date from the mid-eighties, where the input-output models revealed the impact in the areas where there was tourist activity. In this respect, Mescon & Vozikis (1985) applied this methodology to Miami Dade County. Almost a decade later, Dwyer & Forsyth (1996, 1998), basing their studies on Australian areas of high cruise activity, propose alternative methodologies to the input-output model to know the economic impact of tourist cruises in any region. On the other hand, Vina & Ford (1998) determined the economic importance of a region based on the classification between the ports of shipment and the collection ports. As a milestone that unified the studies that had been carried out in the nineties, Chase (2001), in his thesis, established the basis for further research to know the economic influence of cruise tourism in a region with a broader vision of the evaluated magnitudes.

Subsequent studies continued using the input-output methodology, and although there was one that addressed the cruise tourism field on a global scale (Wood, 2000), most analyzed the effects in a particular region, such as the research carried out by Braun, Xander & White (2002) in Port Canaveral; Chase & Alon (2002) in Barbados and; Chase & McKee (2003) in Jamaica. In this sense, it should be noted that the results obtained in each of them did not converge on similar conclusions, this was due to the origin of the data, since some implemented surveys and others implemented national accounting data.

In parallel, Dwyer, Douglas & Livaic (2004) continued to deepen in the Australian regions, showing greater focus on the international reputation of their cruise industry than on its local image.

The most recent studies, dated in the last decade, incorporate as a novelty the broadening of the geographical scope, as example there are studies that were carried out focused on the Colombian Caribbean (see Brida, Bukstein, Garrido, Tealde & Aguirre, 2010) and in the Mediterranean regions of Croatia and Serbia (see Dragin, Jovicic & Boskovic, 2010). Likewise, they begin to measure magnitudes that in the previous studies had not been contemplated, as is the case of Brida et al. (2010) that

assessed the spending capacity of passengers, something that Dragin et al. (2010) not only confirmed, but also enriched, incorporating sociocultural variables into the spending pattern.

Also, Dragin et al. highlighted that the revenues generated by cruise tourism were advantageous for the local tourism industry and for job creation, although they did not have an impact on accommodation and restaurant services, although another team (Hefner, Mcleod & Crofts, 2014), subsequently would refute this study.

As of 2010, there are many studies that focus on consumer behavior in cruise ships, highlighting those carried out by Larsen et al. (2013) and by Hung & Petrick (2010), who give a valid and reliable scale to measure the restrictions of consumers in the acquisition of this type of vacation. This aspect has been considered intensely in recent years, by virtue of studies such as those of Fan & Hsu (2014), which modeled the acquisition process of cruise passengers, something that was subsequently qualified by Chen et al. (2016). The behavior at ports has also been investigated, reaching interesting conclusions about the importance of the recommendations (Satta et al., 2015) and other sources of information that tourists use (Sanz-Blas et al., 2017). Other areas of research about cruise tourism, which have generated more studies, include the environmental or social impact in the areas receiving this type of tourism. In this regard Kido-Cruz & Cuellar-Rio (2010) established the need to create a tax on the environmental use in Mexico for cruise passengers, determining the necessary threshold so that it does not affect demand. For its part, the studies conducted in 2012 by Arnold et al. (2012), Brida et al. (2012) and Brida, Riaño & Zapata (2012) in Alaska and Colombia respectively, reveal the socio-cultural processes that underlie the visit of cruise passengers. The results obtained were reinforced by the studies that were carried out in the Mediterranean (Brida, Chiappa, Meleddu & Pulina, 2014).

The studies carried out in the sector in the last five years rarely address the economic impact of cruise tourism, one of the few examples being the one carried out in 2017 (Loscertales-Sánchez & Peláez-Verdet, 2017), where some measures of economic impact were ventured. On the contrary, the lines of research have focused on the corporate social responsibility of the cruising companies (see Bonilla-Priego, Fontb & Pacheco-Olivares, 2014, de Grosbois, 2015), the design of the facilities to satisfy the demands from companies and users (eg Hardwick, Youdale & Frankland, 2013), or market trends and decision-making in the management of destinations that offer this type of service (see Castillo-Manzano, López -Valpuesta & Alanís, 2014; De los Reyes, Ruiz, Ruiz & De la Cruz, 2015).

2. Materials and methods

For this investigation, two clearly differentiated stages have been established. In the first, the groups in which the cruise passengers are subdivided in Spain have been determined, considering their behavior during the trip, focusing the analysis especially on their spending and in which communities the cruise passengers make tourism in Spain. This has made it possible to identify the importance of the Spanish continental littoral in the national tourism market, delimiting the destinations receiving cruise

ing tourism in this area. It was thus possible to identify four destinations of different dimensions that could be the object of this study.

In a second phase, information was obtained about the companies that normally have links with this sector, and that a priori could be affected by a greater or lesser presence of cruise ships in the destination. The financial information allowed to establish some regression functions that, suitably adjusted, allowed to define correlations between the influx of cruise passengers in each destination and the financial performance of the companies that operate in it.

2.1 Identification of the cruise passenger profile and its importance in Spain

The EGATUR survey is a tourism market prospecting campaign published every year in Spain. For this research it was necessary, first of all, to collect the microdata of the survey, available at the National Institute of Statistics. Subsequently, they had to be consolidated and preprocessed in Data Mining software, which in this case was Weka (version 3.8.1). The registration of this microdata allowed us to obtain a dataset of the following variables and dimensions:

Chart 1. Variables identifying the cruise passenger profile

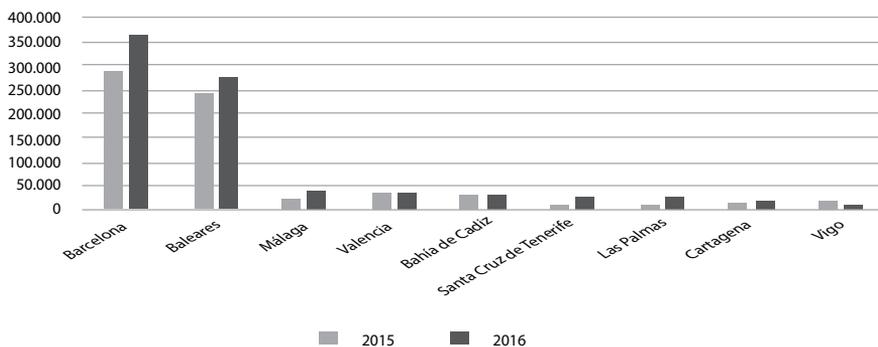
Variable	Values	Frequency (or Description)
Date	Months	Between October 2015 and October 2017
Respondent	2: Non-resident tourist (no transit) 8: Non-resident tourist in transit	177 826 9 741
Way of departure	1: highway 2: airport 3: port 4: train	22 758 154 594 7 377 2 828
Country of residence	01: Germany. 02: Belgium. 03: France. 04: Ireland. 05: Italy. 06: The Netherlands. 07: Portugal. 08: United Kingdom. 09: Switzerland. 10: Russia. 11: Nordic countries (Denmark, Finland, Norway, Sweden). 12: Rest of Europe. 13: USA. 14: Rest of America. 15: Rest of the world	
Main autonomous region of the trip	01: Andalusia. 02: Aragon. 03: Principality of Asturias. 04: Illes Balears. 05: Canary Islands. 06: Cantabria. 07: Castilla and Leon. 08: Castilla-La Mancha. 09: Catalonia. 10: Comunitat Valenciana. 11: Extremadura. 12: Galicia. 13: Community of Madrid. 14: Region of Murcia. 15: Comunidad Foral of Navarra. 16: Basque Country. 17: La Rioja. 18: Ceuta. 19: Melilla	
Total overnight stays	Nights	Mean: 9,27 Std. dev: 12,9

Lodging	1: Hotels and similar 2: Rest of the market 3: Non-market accommodation	105 466 21 581 60 520
Reason for the trip	1: Leisure/vacation 2: Business 3: The rest	134 254 18 830 34 483
Uses tour package	1: Yes 6: No	38 269 149 298
Total expenditure during the trip	Euros	Mean: 1 132,69 Std. dev: 1040,6

After obtaining these data, a K Means cluster analysis applied only to observation units with exit route 3 (port) allowed to identify the main five groups that make up the cruise sector in Spain, with interesting results. Basically, it was possible to identify the resounding importance of the communities of Catalonia, Levante and Andalusia as a vacation spot for tourists who subsequently leave by sea. This, in turn, shed light on the main ports used by these tourists, which gave way to a second phase of this first stage of the investigation, seeking to limit it geographically.

In this sense, the analysts went to the Statistical Yearbook of Ports of the State, published each year by Puertos del Estado (dependent of the Ministry of Development). This manual presented for the peak season of cruises (which coincides with the month of July) of the years 2015 and 2016 the figures that can be seen in figure 1, which present the situation for the Spanish ports that maintained, in period, a traffic higher than 10,000 passengers. As can be seen, there are four ports on the peninsular Spanish coast that have different and very attractive dimensions for the analysis: Barcelona (leading cruise port), Málaga and Valencia (intermediate ports), and Cartagena (smaller port).

Figure 1. Passengers in the main Spanish ports



This scenario provided the opportunity to make a comparative analysis of the economic impact of cruises in each of these destinations, which could be measured by the financial performance of the companies that are most related to this sector.

2.2 Financial performance of companies

Not all companies in each tourist destination are affected equally by the cruise industry. For the purposes of this research, measures of the economic and financial profitability of several companies was obtained in the cities of Barcelona, Málaga, Valencia and Cartagena, through the SABI database (Iberian Balance Sheet Analysis System). The selection criteria of the companies had to fulfill the objective of obtaining a set of firms that were sensitive to the variation, during a period, of the number of passengers disembarking in each of the analyzed ports. In this sense, the research focused on obtaining the financial information of the companies of each city that simultaneously fulfilled the following requirements:

Chart 2. Requirements for the selection of companies to be studied

Requirement	Value
Created	Since January 1, 1997
Status	Active during 2017
CNAE 2009 (Primary code)	471 - Retail trade in non-specialized establishments 472 - Retail sale of food, beverages and tobacco in specialized stores 476 - Retail trade of cultural and recreational articles in specialized establishments 551 - Hotels and similar accommodation 552 - Tourist accommodation and other short-stay accommodation 561 - Restaurants and food stands 563 - Beverage establishments 791 - Activities of travel agencies and tour operators 799 - Other reservation services and activities related to the same 900 - Creative, artistic and entertainment activities 910 - Activities of libraries, archives, museums and other cultural activities 920 - Gambling and betting activities 932 - Recreational and entertainment activities

The result of this search yielded a total of 5 640 companies (3 163 in Barcelona, 199 in Cartagena, 825 in Málaga and 1 453 in Valencia). Their measures of economic profitability, business profitability and its number of employees between 1997 and 2016 were incorporated into the analysis.

On the other hand, when consulting the Statistical Yearbook of the Registry of Ships and Shipping Companies (provided by the General Directorate of the Merchant Navy, State Secretariat for Infrastructure, Transport and Housing, Ministry of Development), the registered passenger census is obtained from each port authority, with a time horizon of twenty years. This allowed the researchers to have an independent variable that correlates with that dependent on the financial performance of the companies that surround each cruise port. This process was carried out through a

curvilinear estimation process that adjusted the relationship between both variables, through the IBM SPSS Statistics® software (version 22, IBM Corp., 2013).

3. Analysis

As a consequence of the application of these methods, the analysis was able to base a measure of the cross-influence of cruise tourism in four Spanish destinations in the Mediterranean peninsula. For this, it was necessary, in the first place, to identify the cruise passenger and estimate the ports in which it was present in a tourist way, and second to calculate the correlation between the influx of cruise passengers in each port and the economic performance of the companies associated to it.

3.1 What destinations do cruise passengers visit before returning?

After the discretization of the variable «Total expenditure» in ten equal intervals, and the filtering of the surveys to obtain only the cruise tourists (and not the hikers or those tourists who had left by other means), the total number of tourists per cruise stayed at 3 873). The execution of the cluster analysis in the dataset obtained from EGATUR between October 2015 and October 2017 and thusly preprocessed could be established, using the K Means algorithm (Euclidean Distance) three different groups of cruise passengers that integrated the total of tourists were distributed as follows:

Chart 3. Results of the cluster analysis on EGATUR data

Cluster	1	2	3
Origin	United Kingdom	United Kingdom	Resto f the world
Autonomous community of main destination	Catalonia	Valencian Com-munity	Andalusia
Total overnight stays (average)	7,42	38,14	11,8
Main reason for travel	Vacation	Vacation	Vacation
Tourist Package	No	No	No
Total expenditure on the trip	Between 1450 and 1990 euros	More than 1990.60 euros	More than 1990.60 euros

Two preliminary conclusions can be drawn from this analysis: the cruise tourist generally supports a high level of expenditure compared to other types of tourists, a fact supported by the fact that the centroids of the three clusters are at the highest level of the general expenditure categories (case of cluster 2 and 3), and the one below (cluster 1). In addition, this allowed the researchers to geographically limit the analysis on the peninsular coast, since at no time does it seem that the island ports represent a specific weight compared to destinations in Catalonia, Valencia and Andalusia.

Comparing the previous partial conclusions with the report of Ports of the State referred to above, the analysis continued focusing on the Mediterranean peninsular ports of the Mediterranean: Barcelona (Catalonia), Valencia (Comunitat Valenciana), Cartagena (Port associated with the destination Valencia by geographical proximity,

and interesting from the point of view of its size) and Málaga (cruise port entrance to Andalusia from the Mediterranean).

3.2 What influence does cruise tourism have on local companies?

In a second phase of the investigation, the team focused its efforts on gathering financial information on the companies that could be influenced the most, a priori, in by the cruise sector. After the search described in the second point of the previous section, the team recorded and averaged annual economic and financial returns, as well as the number of employees declared of the 5 640 companies involved in this study that were known in the SABI database through the Spanish Commercial Registry. After this work of compilation, it became available a historical, business to business, of the variables described below:

Chart 4. Descriptions of the economic profitability of companies by city analyzed

Economic profitability (%)	Barcelona	Cartagena	Málaga	Valencia
Mean	- 4,28	1,91	- 7,27	- 5,33
Typical error	9,39	1,00	2,37	1,31
Median	- 7,58	1,50	- 3,41	- 5,73
Standard deviation	42,00	4,45	10,60	5,87
Variance	1.763,68	19,84	112,42	34,43
Curtosis	14,35	- 0,96	1,88	- 1,09
Asymmetry coefficient	3,32	- 0,04	- 1,53	- 0,05
Range	231,80	14,83	39,54	20,25
Minimum	- 70,57	- 5,18	- 35,49	- 15,49
Maximum	161,22	9,65	4,05	4,76
Confidence level (95,0%)	19,65	2,08	4,96	2,75

Economic profitability is the measure of the efficiency with which the company yields results, according to the size of its assets. It is understood as the quotient between the benefit before interest and taxes and the active total committed to obtain those benefits in a specific year. In this regard, it should be noted that the companies in Cartagena exhibit greater prosperity than those of the other three cities, which show a much lower average of economic returns in the period considered.

Financial profitability, for its part, expresses the extent to which the company remunerates its shareholders for the investment they have made in it, by generating the anticipated capital resources. It should be understood as the proportion of profits before interest and taxes and the company's own resources. In this case, it can be said that Málaga companies are the ones that better reward the resources with which their shareholders endow them.

Chart 5. Descriptions of the financial profitability of the companies analyzed, per city

Financial profitability (%)	Barcelona	Cartagena	Málaga	Valencia
Mean	20,08	- 53,56	72,20	32,64
Typical error	34,12	36,12	66,72	25,61
Median	8,20	24,01	33,77	23,55
Standard deviation	152,61	161,53	298,38	114,55
Variance	23.289,56	26.092,20	89.032,20	13.121,13
Curtosis	7,53	4,44	3,52	5,81
Asymmetry coefficient	2,14	- 2,16	0,32	1,37
Range	772,72	645,82	1.547,28	612,10
Minimum	- 225,28	- 548,91	- 682,19	- 213,41
Maximum	547,44	96,91	865,09	398,69
Confidence level (95,0%)	71,42	75,60	139,65	53,61

Chart 6. Descriptions of the number of employees declared by the companies studied in each city

Employees	Barcelona	Cartagena	Málaga	Valencia
Mean	12,03	6,94	7,24	7,91
Typical error	0,47	0,50	0,44	0,39
Median	12,15	6,71	7,71	7,69
Standard deviation	2,09	2,19	1,98	1,72
Variance	4,36	4,78	3,92	2,95
Curtosis	1,66	- 0,65	1,59	2,62
Asymmetry coefficient	- 1,07	- 0,15	- 1,32	0,74
Range	8,78	7,88	7,95	8,32
Minimum	6,50	2,67	2,00	4,20
Maximum	15,28	10,55	9,95	12,52
Confidence level (95,0%)	0,98	1,05	0,93	0,83

Employees are a standard measure of the size of a company. It is easy to deduce, through the data reflected in chart 6, that the Barcelona firms are those that have the greatest dimension in terms of jobs maintained in their structure. On the other hand, the companies in the rest of the observed destinations maintain an average number of employees of around six, which suggests that they are smaller than the firms in Barcelona.

These are measures associated with the economic life of the last twenty years of the companies analyzed in each destination. On the other hand, the objective was to correlate them with their respective passenger traffic, a variable that was obtained from the Register of Ships of the Merchant Navy, which officially publishes this measure for each Spanish port. This measure gives an indication of the tourist importance of

each place from the tourist point of view and allows to compare the destinations with a homogeneous magnitude and easy to understand.

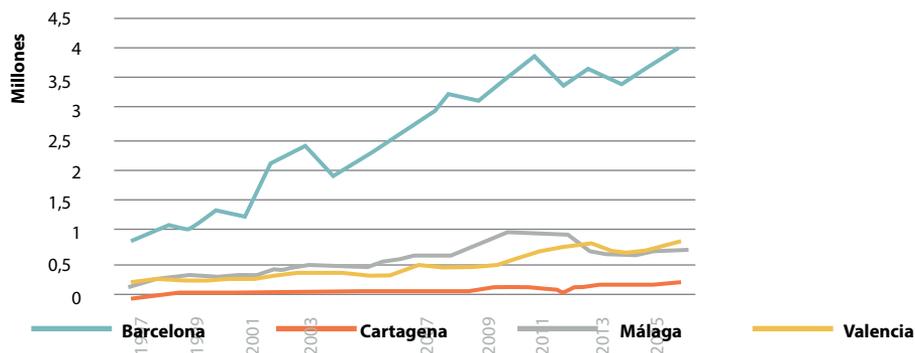
After the compilation of the information provided by the Ship Registry of the Merchant Navy, a complete record was obtained not only of passengers, but of activity of each port in relation to ship traffic, cargo, services, cabotage, etc. For the purposes of this investigation, the relevant information about the passengers was automated in a single register containing the passenger traffic during the same twenty years analyzed for each port, which can be seen in the following chart:

Chart 7. Descriptions of passenger flow by analyzed port

Passengers	Barcelona	Cartagena	Málaga	Valencia
Mean	2.586.072,60	59.566,90	552.781,20	471.231,60
Typical error	231.287,47	12.644,92	55.046,81	50.002,03
Median	2.709.430,50	32.187,50	556.612,00	397.458,50
Standard deviation	1.034.349,02	56.549,79	246.176,84	223.615,88
Variance	1.069.877.900.044,78	3.197.879.046,52	60.603.034.507,85	50.004.061.213,09
Curtosis	-1,33	- 0,26	- 0,91	- 0,97
Asymmetry coefficient	-0,36	0,97	0,13	0,66
Range	3.073.589,00	186.111,00	800.326,00	702.263,00
Minimum	887.840,00	2.401,00	184.712,00	205.880,00
Maximum	3.961.429,00	188.512,00	985.038,00	908.143,00
Confidence level (95,0%)	484.090,24	26.466,12	115.214,31	104.655,45

It is important to mention that the trend in the volume of passengers has been growing throughout the considered period, which requires thinking of a sustained improvement in the conditions for companies. This is shown in Figure 2.

Figure 2. Passengers by analyzed port and year



4. Results

Cross-analysis of these data sets lead to interesting conclusions, once all the information was introduced in the SPSS® software, and making a curvilinear correlation to estimate which curves would better adjust to the mutual behavior of the described parameters. The results can be seen in chart 8 (the blank cells are equivalent to non-significant relationships):

Chart 8. Functions and coefficients significant at 95%
of the Economic Profitability-Passengers adjustment by city

Adjustment model		Passengers/ Economic profitability		
		Cartagena	Málaga	Valencia
Function	Parameter	Coef.	Coef.	Coef.
Inverse	1/Passengers		4004608,24	3552515,8
	Constant		-16,545	-14,715
Lineal	Passengers	-5,19E-05		
	Constant	5,292		
Logarithmic	ln(Passengers)	-2,993	-11,69	-8,749
	Constant	33,719	145,991	107,842
Quadratic	Passengers	0		
	Passengers** 2	5,20E-10		
	(Constant)	7,27		
Cubic	Passengers		0	
	Passengers**2		-7,59E-10	
	Passengers**3		4,42E-16	
	Constant		-47,043 (*)	

Note: (*) significant at 90%.

As can be seen, the results indicate significant relationships in several functions, and it can be highlighted that some of them reveal themselves with a high significance. No significant results were obtained for the same analysis associated with the financial profitability of the analyzed companies, which indicates an absence of correlation between this and the flow of passengers, which may be related to other economic or tourism magnitudes.

Regarding the jobs declared by these companies, relevant correlations were found, shown in chart 9:

**Chart 9. Functions and coefficients significant at 95%
of the adjustment between passenger flow and number of employees declared by port**

Adjustment model		Passengers/Number of employees		
		Barcelona	Cartagena	Málaga
Function	Parameter	Coef.	Coef.	Coef.
Inverse	1/Passengers	-3025668,14	-18970,137	-1095660,37
	Constant	13,485	7,768	9,779
Lineal	Passengers			4,33E-06
	Constant			4,844
Exponential	Passengers			8,75E-07
	Constant			4,229
Logarithmic	ln(Passengers)			2,511
	Constant			-25,682
Quadratic	Passengers		6,05E-05 (*)	
	Passengers** 2		-3,02E-10	
	(Constant)		5,247	
Cubic	Passengers	4,32E-05	0	
	Passengers**2	-1,77E-11	-3,23E-09	
	Passengers**3	2,23E-18	1,03E-14	
	Constant	-18,554	2,156	
S	1/Passengers	-354853,492	-3235,46	-223281,54
	Constant	2,641	2,023	2,443

Note: (*) significant at 90%.

5. Discussion and conclusions

From the results presented above, interesting conclusions are drawn that could serve as a reference to guide future work on this aspect of cruise tourism.

The first issue that draws attention is the number of functions that significantly correlate the volume of passengers that circulated in each port with the economic returns recorded by the analyzed companies. In the case of Málaga, the logarithmic or cubic functions seem to respond quite well, while in the case of Cartagena a cubic function fits this relationship in an acceptable manner.

There is a striking absence of relationships between the financial profitability of companies and the number of cruise passengers. It could be that it has to do with the capital structure and the indebtedness of the firms that have been analyzed. In future work, this should be a line of research, which delves into the liabilities of the studied companies and verifies if there are financial categories more susceptible than others to changes in the cruise market of their city.

The number of jobs seems to be a variable even more linked to the flow of cruises than the economic profitability of the companies they serve. The case of Málaga is striking, where a composite function explains this relationship very well. However, a logistic function of similar parameters in all cities could be highlighted as a relevant finding, since it allows to explain, in a significant and very similar way, the relationships between jobs and the flow of tourists in the four analyzed destinations and can be inferred by its coefficients the impact that an increase in the flow of tourists would have in job creation. Finally, some lines of action could be pointed out for future work in this regard, which inquire into what has already been presented here. For example, one of the limitations of this work has been the time horizon that has been considered. To the extent that temporary data can be added to the studied series, to make them longer than only twenty years, the results could gain in accuracy. On the other hand, the profile of the companies has not been broken up in the analysis, and there may be companies that are very sensitive to the sector and other categories which changes in cruise tourist flow that result in lesser harm or benefit. A more detailed analysis of the effects of these variables, depending, for example, on the CNAE 2009 heading in which the company is located, could yield very promising and professionally valuable results for the DMO's of these four studied destinations.

References

- Arnold, A., Arnold, B., & Chapman, D. (2012). Alaskan Communities Responses Regarding the Economic, Sociocultural and Environmental Impact of the Cruise Ship Tourism Industry. *Insight to a Changing World Journal*, (2), 29-42.
- Bonilla-Priego, M. J., Fontb, X., & Pacheco-Olivares, M. del R. (2014). Corporate sustainability reporting index and baseline data for the cruise industry. *Tourism Management*, 44, 149-160. <https://doi.org/10.1016/j.tourman.2014.03.004>
- Braun, B. M., Xander, J. A., & White, K. R. (2002). The impact of the cruise industry on a region's economy: A case study of Port Canaveral, Florida. *Tourism Economics*, 8(3), 281-288. <https://doi.org/10.5367/000000002101298124>
- Brida, J. G., Bukstein, D., Garrido, N., Tealde, E., & Aguirre, S. Z. (2010). Impactos económicos del turismo de cruceros: Un análisis del gasto de los pasajeros de cruceros que visitan el Caribe colombiano. *Estudios y Perspectivas en Turismo*, 19, 607-634.
- Brida, J. G., Chiappa, G. del, Meleddu, M., & Pulina, M. (2014). A Comparison of Residents' Perceptions in Two Cruise Ports in the Mediterranean Sea. *International Journal of Tourism Research*, (16), 180-190. <https://doi.org/10.1002/jtr>
- Brida, J. G., Del Chiappa, G., Meleddu, M., & Pulina, M. (2012). Cruise tourism externalities and residents' support: A mixed approach. *Economics*, 6(40), 0-27. <https://doi.org/10.5018/economics-ejournal.ja.2012-40>
- Brida, J. G., Riaño, E., & Zapata, S. (2012). Residents' perceptions toward cruise tourism impacts on a community: a factor and cluster analysis. *Cuadernos de Turismo*, (29), 263-266.
- Castillo-Manzano, J. I., López-Valpuesta, L., & Alanís, F. J. (2014). Tourism managers' view of the economic impact of cruise traffic: the case of southern Spain. *Current Issues in Tourism*, 18(7), 701-705. <https://doi.org/10.1080/13683500.2014.907776>
- Chase, G., & Alon, I. (2002). Evaluating the Economic Impact of Cruise Tourism: A Case Study of Barbados. *Anatolia*, 13(1), 5-18. <http://dx.doi.org/10.1080/13032917.2002.9687011>
- Chase, G. L. (2001). *The economic impact of cruise ships in the 1990s: Some evidence from the Caribbean*. ProQuest Dissertations and Theses. Kent State University. (goo.gl/6CNcGX) (8-11-2017).

- Chase, G., & McKee, D. (2003). The economic impact of cruise tourism on Jamaica. *Journal of Tourism Studies*, 14(2), 16-22.
- Chen, J. M., Neuts, B., Nijkamp, P., & Liu, J. (2016). Demand determinants of cruise tourists in competitive markets: Motivation, preference and intention. *Tourism Economics*, 22(2), 227-253. <https://doi.org/10.5367/te.2016.0546>
- CLIA (2016). 2017 Cruise Industry Outlook. (goo.gl/CRi3fm) (8-11-2017).
- de Grosbois, D. (2015). Corporate social responsibility reporting in the cruise tourism industry: a performance evaluation using a new institutional theory based model. *Journal of Sustainable Tourism*, 9582 (May), 1-25. <https://doi.org/10.1080/09669582.2015.1076827>
- De los Reyes, E., Ruiz, C., Ruiz, E., & De la Cruz, R. (2015). Tendencias y estrategias en la industria del crucero: principales áreas del turismo de cruceros en el mundo. *TURyDES*, 8(19).
- Dragin, A. S., Jovicic, D., & Boskovic, D. (2010). Economic Impact of Cruise Tourism Along the Pan-European Corridor VII. *Ekonomika Istrazivanja*, 23(4), 127-141. <https://doi.org/10.1080/1331677X.2010.11517438>
- Dwyer, L., Douglas, N., & Livaic, Z. (2004). Estimating the Economic Contribution of a Cruise Ship Visit. *Tourism in Marine Environments*, 1(1), 5-16.
- Dwyer, L., & Forsyth, P. (1996). Economic Impacts of Cruise Tourism in Australia. *Journal of Tourism Studies*, 7(2), 36-43.
- Dwyer, L., & Forsyth, P. (1998). Economic significance of cruise tourism. *Annals of Tourism Research*, 25(2), 393-415. [https://doi.org/10.1016/S0160-7383\(97\)00098-4](https://doi.org/10.1016/S0160-7383(97)00098-4)
- Hardwick, L., Youdale, J., & Frankland, R. (2013). *Cruise ship driven development of port and coastal infrastructure. Coasts and Ports 2013* (pp. 352-357). National Committee on Applied Mechanics. (goo.gl/DWFBWB) (12-10-2017).
- Fan, D. X. F., & Hsu, C. H. C. (2014). Potential Mainland Chinese Cruise Travelers' Expectations, Motivations, and Intentions. *Journal of Travel and Tourism Marketing*, 31(4). <https://doi.org/10.1080/10548408.2014.883948>
- Hefner, F., Mcleod, B., & Crotts, J. (2014). Research note: An analysis of cruise ship impact on local hotel demand - An event study in Charleston, South Carolina. *Tourism Economics*, 20(5), 1145-1153. <https://doi.org/10.5367/te.2013.0328>
- Hung, K., & Petrick, J. F. (2010). Developing a Measurement Scale for Constraints To Cruising. *Annals of Tourism Research*, 37(1), 206-228. <https://doi.org/10.1016/j.annals.2009.09.002>
- IBM Corp. (2013). IBM SPSS Statistics for Windows [Computer software]. Armonk, NY: IBM Corp.
- Kido-Cruz, M. T., & Cuellar-Río, M. (2010). Impacto económico por el pago de pasajeros de cruceros para la conservación de recursos naturales: el caso de Bahías de Huatulco, México. *Economía Sociedad y Territorio*, x(32), 81-97.
- Loscertales-Sánchez, P., & Peláez-Verdet, A. (2017). The economic influence of cruise tourism onto a littoral destination. *International Journal of Scientific Management Tourism*, 3(2), 351-367. (<https://goo.gl/uyH71J>) (8-10-2017).
- Mescon, T. S., & Vozikis, G. S. (1985). The economic impact of tourism at the port of Miami. *Annals of Tourism Research*, 12(4), 515-528. [https://doi.org/10.1016/0160-7383\(85\)90075-1](https://doi.org/10.1016/0160-7383(85)90075-1)
- Satta, G., Parola, F., Penco, L., & Persico, L. (2015). Word of mouth and satisfaction in cruise port destinations. *Tourism Geographies*, 17(1), 54-75. <https://doi.org/10.1080/14616688.2014.938689>
- Sanz-Blas, S., Buzova, D., & Carvajal-Trujillo, E. (2017). Investigating the moderating effect of information sources on cruise tourist behaviour in a port of call. *Current Issues in Tourism* 20(2), 120-128. <https://doi.org/10.1080/13683500.2015.1091444>
- Vina, L. de la, & Ford, J. (1998). Economic Impact of Proposed Cruiseship Business. *Annals of Tourism Research*, 25(4), 205-208.
- Wood, R. E. (2000). Caribbean cruise tourism: Globalization at sea. *Annals of Tourism Research*, 27(2), 345-370. [https://doi.org/10.1016/S0160-7383\(99\)00073-0](https://doi.org/10.1016/S0160-7383(99)00073-0)