

Determinants of cruise tourists' expenditure visiting port cities

Antoni Domènech and Aaron Gutiérrez

Abstract

Purpose – *The purpose of this paper is to detect the determinants of cruise tourists' expenditure level during their visits to an emergent Mediterranean port city. The article also aims to discuss its findings and contrast them with previous similar studies in other territorial contexts.*

Design/methodology/approach – *The study is based on surveys conducted on 1,010 cruise tourists that visited the city of Tarragona (Catalonia) during 2017. An ordered logit model is implemented to measure the impact of different variables related to the tourists' characteristics and their activities developed at the destination.*

Findings – *Results underline diverse significant influences of multiple factors on the expenditures, such as the travel party, the age of the visitors, the length of stay and the tourists' activities in the city. Although no incidence has been detected of variables related to the satisfaction with the visit of the cruise passengers in general, a positive association has been identified for those cruise passengers travelling on super-sized ships.*

Originality/value – *This study tests the effect of different variables that the literature pinpointed as determinants of the cruise tourists' expenditures as well as other variables that have been underexplored in existing studies. The findings of this article are of special value for public and private organisations to optimally manage and market cruise tourism and boost the local economic impact.*

Keywords *Cruise tourism, Cruisers, Tourists' expenditure, Tarragona*

Paper type *Research paper*

目的：本文的主要目的是研究游轮游客在地中海某新兴港口城市旅游期间支出水平的决定因素。同时，本文也对研究结果进行了探讨，并将其与以往在其他区域背景下的类似研究进行对比。

设计 / 方法 / 途径：本研究对 1010 名游轮游客进行了调查，这些游客在 2017 年访问了塔拉戈纳（加泰罗尼亚）。随后，通过运用有序逻辑模型，对涉及旅游目的地游客特征及其旅游活动的不同变量的影响进行了衡量。

发现：研究结果表明，旅行团体规模、游客年龄、停留时间和游客的城市活动等多种因素对旅游支出有着不同程度的显著影响。尽管本研究未检测到与游轮游客的总体访问满意度相关的变量，但在大型游船上的游轮游客中，检测出了积极的相关关系。

独创性 / 值：本研究检验了现有文献提出的不同变量，以及文献中尚未充分探讨的其他变量对游轮游客支出的影响。本研究的成果对公共和私人组织进行游轮旅游的优化管理和市场营销，以及提高地方的经济影响力的实践具有特殊的价值。

关键词：邮轮旅游，巡洋舰，塔拉戈纳，游客的支出

文章类型：研究论文

Propósito : *El objetivo principal de este artículo es detectar los determinantes del nivel de gasto económico de los turistas de cruceros durante sus visitas en una ciudad portuaria emergente y mediterránea. El artículo también pretende discutir sus hallazgos y contrastarlos con estudios similares realizados previamente en otros contextos territoriales.*

Diseño/Metodología : *El estudio se basa en encuestas realizadas a 1.010 turistas de cruceros que visitaron la ciudad de Tarragona (Catalunya) durante 2017. Se ha implementado un modelo logit ordenado, para medir el impacto de diferentes variables relacionadas con las características de los turistas y sus actividades desarrolladas en el destino.*

Resultados : *Los resultados subrayan diversas influencias significativas de múltiples factores sobre los gastos económicos de los turistas de cruceros, como el tamaño del grupo de viaje, la edad de los*

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visitantes, la duración de la estancia y las actividades desarrolladas en la ciudad. Aunque en general no se ha detectado ninguna incidencia de variables relacionadas con la satisfacción con la visita a la ciudad, se ha identificado una asociación positiva para los pasajeros de cruceros que viajan en barcos de gran tamaño.

Originalidad/valor : Este estudio prueba el efecto de diferentes variables que la literatura existente ha identificado como determinantes del gasto económico de los turistas de cruceros, así como otras variables no exploradas previamente. Los hallazgos de este trabajo son de especial valor para las organizaciones públicas y privadas para administrar y comercializar de manera óptima el turismo de cruceros e impulsar el impacto económico local.

Palabras-chave : Turismo de cruceros, cruceros, Tarragona, gasto turístico

1. Introduction

According to data provided by Cruise Market Watch[1], an estimated 25.8 m passengers cruised in 2017 compared to a confirmed 17.8 m passengers in 2009, representing a growth of 45 per cent over the period. Forecasts point to an uninterrupted steady growth during the following years and the milestone of 30 m cruise passengers could be achieved soon. In their literature review, [Papathanassis and Beckmann \(2011\)](#) developed a thematic analysis to classify the research on cruise tourism into four major themes: the cruise market, the cruise society, cruises and society and cruise administration. In the past decade, a considerable number of studies have focused on the third theme, which refers to the implications of cruises and their passengers, *vis-à-vis* ports of call. Traditionally, in this research area, the positive economic effects that cruise tourism generates for port cities are analyzed ([Dwyer and Forsyth, 1996](#)). However, literature focused on the negative externalities of cruise tourism has emerged strongly. As a result, analyses of the social, cultural, economic and environmental impacts of cruise tourism in specific territories have been developed ([Brida and Zapata, 2010](#)). Overcrowding of tourist attractions, limited cruisers' expenditure onshore ([Larsen et al., 2013](#)) and residents' perceptions, attitudes towards or support for cruise tourism ([Jordan and Vogt, 2017](#)) lie at the centre of the debate on the contribution of cruise tourism to port destinations.

In parallel, the experience of cruise passengers onshore has been an emergent research topic during recent years. Today, cruise tourism is no longer a luxury product ([De Cantis et al., 2016](#)), as it has extended its market share to younger cohorts, families, seekers of an active vacation and low-income tourists ([Marksel et al., 2016](#)). In this regard, more empirical evidence is needed to identify common patterns among all cruise passengers but also in specific territorial contexts. These studies are useful for increasing both the cruise passengers' satisfaction and the economic impact at destination. Hence, research on the determinants of satisfaction and on the intention to return and to recommend ([Gabe et al., 2006](#); [Andriotis and Agiomirgianakis, 2010](#); [Larsen and Wolff, 2016](#)), on the factors influencing passengers' expenditure ([Henthorne, 2000](#); [Brida et al., 2012a](#); [Lee and Lee, 2017](#)) and on the cruisers' spatial behaviour at destinations ([Jaakson, 2004](#); [De Cantis et al., 2016](#); [Ferrante et al., 2016](#)) are of special value for port and local authorities that look for ways to maximise the benefits for their destinations and to minimise the various negative impacts of cruise tourism on port cities.

This paper aims to contribute to the growing literature on the identification of the determinants of the cruise passengers' expenditure onshore by developing a study of an emergent Mediterranean cruise destination. The study has been developed in Tarragona (Catalonia), a UNESCO World Heritage City with a very recent history in cruise tourism. It tests the effect of different variables that the literature has previously highlighted as determinants of cruise passengers' expenditure. However, these variables, related to the tourists' characteristics and their activities developed at the destination, have not always been revealed as significant determinants, either with the same intensity or with the same direction, and some of them have been underexplored in the literature, as not so many

research studies have considered them for analysis. Hence, this paper sheds some light on the identification of those variables that play a major role in the tourists' expenditure onshore. Data used have been gathered by means of surveys distributed to cruise passengers that visited the city on their own from June to November 2017. An ordered logit model has been used to identify the determinants of the cruise passengers. The results of this research are of special interest to public and private organisations involved in the so-called value chain of cruise tourism (Papathanassis, 2017) to aid in the development of design strategies to increase the local economic impact at destinations.

After this introduction, a literature review is presented. Then, further details on the territorial context, the data used and the method implemented are given. Afterwards, the main findings of the work are revealed and discussed. Finally, conclusions with academic and managerial implications are presented.

2. Literature review

A review of the literature has been developed by considering all the research projects that apply microeconomic models to identify the determinants of cruise passengers' expenditures onshore. A total of 15 published articles (Table I) have been selected for analysis from the Scopus database. All those that use descriptive statistics (Douglas and Douglas, 2004), graph-based models (Brida *et al.*, 2017) or machine-learning techniques (Brida *et al.*, 2018) have been discarded, as the interpretation of the results could not be homogenised. In addition, an article that analyzes the determinants of cruise passengers embarking in a Caribbean port has been excluded (Brida *et al.*, 2012b) because of the different nature of the tourist profile analyzed.

All the selected articles have been published in the past decade, with the exception of the work written by Henthorne in 2000. This highlights the emergent character of this research area. The Atlantic ports of Montevideo and Punta del Este (both in Uruguay) have been the most studied destinations, followed by other study cases developed in Mediterranean and Caribbean ports. As can be seen in Table I, there is a concentration of studies in a reduced number of cases and authorships. This issue highlights the necessity of developing more case studies in different territorial contexts to provide further evidence and expand the theoretical framework.

There is no homogeneous treatment of the dependent variable in all the studies. On one hand, in some research, the expenditure has been segmented according to the type of purchase done by the cruise passengers. On the other hand, different microeconomic models have been applied according to the nature of the dependent variable. In this regard, logistic regressions and Heckits have been performed when the dependent variable is treated as a dummy (spending or not spending; or spending more than the average or not), and multivariate regressions by means of ordinary least squares (OLS), Tobit models or Heckmans have been used when the dependent variable is treated as metric.

In Table II, the multiple explicative variables included in the models, the microeconomic techniques applied and the results of the estimations are exposed. Gender is a variable included in most of the studies, as are the age and the country of origin. Regarding the gender, there are authors that have identified a higher probability of women spending higher amounts of money compared to men (Marksel *et al.*, 2016), whilst other studies revealed just the opposite (Brida *et al.*, 2014). However, no predominant association between expenditure and gender has been found (Henthorne, 2000; Gargano and Grasso, 2016). Similarly, no clear relationship has been detected in the literature between expenditure and age (Gargano and Grasso, 2016; Marksel *et al.*, 2016). Some studies have indicated a positive and significant association with both variables, showing that the senior adults and elders among the cruise passengers spend more money onshore (Henthorne, 2000; Brida and Rizzo, 2010; Lee and Lee, 2017), but also the opposite has been proved (Parola *et al.*, 2014; Di Vaio *et al.*, 2018). The passengers' country of origin has also been underlined as an important determinant in

Table 1 Studies that deal with the influencing factors on cruise passengers' expenditures onshore

Study	Sample	Year (period)	Context	Dependent variables: type (model specification)
a. Bellani et al. (2017)	n.i.	2010-11/ 2011-12/ 2012-13/ 2013-14/ 2014-15 (November-April)	Atlantic ports (Montevideo and Punta del Este, Uruguay)	Expenditure total: ^a (Heckit), ^b (Tobit)
b. Brida and Risso (2010)	1121	2008 (December-March)	Caribbean ports (Moin and Puerto Limon, Costa Rica) and Pacific ports (Calderas, Puntarenas and Golfito, Costa Rica)	Expenditure total (including in the ship): ^b (Tobit) Expenditure total: ^b (Tobit)
c. Brida et al. (2012a, 2012b)	1361	2009 (October-November)	Caribbean port (Cartagena de Indias, Venezuela)	Expenditure on tours: ^a (Logit), ^b (Tobit) Expenditure on food and beverages: ^a (Logit), ^b (Tobit) Expenditure on souvenirs: ^a (Logit), ^b (Tobit) Expenditure on jewellery: ^a (Logit), ^b (Tobit)
d. Brida et al. (2015)	3348	2009-2010 (November-April)	Atlantic ports (Montevideo and Punta del Este, Uruguay)	Expenditure on tours: ^a (Logit), ^c (Tobit) Expenditure on food and beverages: ^a (Logit), ^c (Tobit) Expenditure on souvenirs: ^a (Logit), ^c (Tobit) Expenditure on jewellery: ^a (Logit), ^c (Tobit) Expenditure total: ^a (Logit), ^c (Tobit)
e. Brida et al. (2014)	3173	2011-2012 (December-April)	Atlantic ports (Montevideo and Punta del Este, Uruguay)	Expenditure total: ^a (Heckit), ^b (Tobit)
f. Di Vaio et al. (2018)	812	2016 (October-December)	Mediterranean Port (Naples, Italy)	Expenditure total: ^b (4 OLS & 4 hierarchical regression)
g. Domènech et al. (2019a)	154	2017 (August-October)	Mediterranean Port (Tarragona, Spain)	Expenditure total: ^b (OLS)
h. Gargano and Grasso (2016)	5500	2014 (Spring-Summer)	Mediterranean Port (Messina, Italy)	Expenditure total: ^b (OLS)
i. Henthorne (2000)	1510	1993-1997	Caribbean Port (Ocho Rios, Jamaica)	Expenditure total: ^b (OLS)
j. Lee and Lee, 2017	1805	2012 (May-October)	Yellow sea (Jeju, Yeosu and Incheon, Korea)	Expenditure total: ^d (ordered probit model)
k. Marksel et al. (2017)	357	2013 (September)	Mediterranean port (Kopper Slovenia)	Expenditure total: ^d (Fisher exact test)
l. Marksel et al. (2016)	357	2013 (September)	Mediterranean port (Kopper Slovenia)	Expenditure total: ^e (Logit)
m. Molinillo et al. (2010)	208	2008 (October)	Mediterranean port (Málaga, Spain)	Expenditure on shopping: ^a (CHAID & discriminatory analysis)
n. Parola et al. (2014)	758	2013	Costa Fortuna cruise passengers (Casablanca, Cadiz, Lisbon, Valencia, Barcelona)	Expenditure total: ^b (3 OLS)
o. Risso (2012)	1803 (08-09) 3,348 (09-10)	2008-09/ 2009-10 (November-April)	Atlantic ports (Montevideo and Punta del Este, Uruguay)	Expenditure total: ^a (Heckit), ^b (Tobit and Heckman) Expenditure on food and beverages: ^a (Heckit), ^b (Tobit and Heckman) Expenditure on shopping: ^a (Heckit), ^b (Tobit and Heckman)

Notes: ^aDummy variable (1 = Yes; 0 = No); ^bper-capita expenditure; ^clogarithm of per-capita expenditure; ^dordered per levels; ^e(1 = higher than average expenditure; 0 = otherwise); n.i. = not indicated in the article, own elaboration

Table II Categories of explicative variables: presence in models and significances of estimations

Category	Articles	Models ^a	Technique					Estimations ^b								
			OLS	Tobit	Logit	Heckit	Others	Metric			Dummy					
<i>Socio-demographic attributes:</i>																
Gender (1 = Female; 0 = Male)	a, b, c, d, e, f, h, i, j, k, l, m, o	42	3	15	10	10	4	0	0	0	7	12	23			
Age (metric)	f, h, i, j, l, m, n	8	4	0	0	0	4	3	3	2	0	0	0			
Young adult (35 years or younger)	a, d, e, g, o	25	1	9	5	10	0	0	0	0	1	0	24			
Adult (35-65 years old)	a, b, d, e, g, o	24	1	10	5	8	0	0	0	0	5	5	34			
Old adult (56 or older)	a, b, c, d, e, f, g, k, o	38	2	15	10	10	1	0	0	0	6	5	32			
<i>Nationality:</i>																
North America	a, b, c, d, e, h, o	36	1	15	9	10	1	0	0	0	8	7	23			
South America	a, d, e, o	24	0	9	5	10	0	0	0	0	18	8	21			
Europe	a, b, e, f, g, h, k, l	15	3	3	1	5	3	0	0	0	5	5	5			
Asia	j	1	0	0	0	0	1	0	0	0	2	0	0			
Oceania	j	1	0	0	0	0	1	0	0	0	0	1	0			
Others	a, e, h, j, n	10	1	1	0	8	0	0	0	0	3	1	6			
<i>Occupation:</i>																
Employed (1=Yes; 0=No)	h, j	2	1	0	0	0	1	0	0	0	2	0	0			
Student	h	1	0	0	0	0	1	0	0	0	0	1	0			
Crew member	a, d, e, m	19	0	6	5	7	1	0	0	0	3	11	5			
Manager	a, d, e, o	24	0	9	5	10	0	0	0	0	9	2	13			
Professional	a, d, e, o	24	0	9	5	10	0	0	0	0	6	1	17			
Employer	d	10	0	5	5	0	0	0	0	0	2	3	5			
Employee	a, e, o	14	0	4	10	0	0	0	0	0	2	0	12			
Housewife	a, e	8	0	1	7	0	0	0	0	0	0	0	8			
Retired	a, d, h, o	22	1	8	5	8	0	0	0	0	1	7	14			
Married	b, f, n	5	2	2	0	0	1	0	0	0	0	2	3			
Single	b	2	0	2	0	0	0	0	0	0	0	2	0			
Education	b, n	3	1	2	0	0	0	0	0	0	0	1	2			
Income	c, j, n	9	1	4	4	0	0	3	0	6	1	3	5			
<i>Travel-related attributes:</i>																
Group size	a, c, d, e, n	27	0	10	9	7	0	10	0	16	5	1	7			
Party structure	g	1	1	0	0	0	0	0	0	0	0	0	3			
Previous cruises	c, f, k, l, n	13	2	4	5	0	2	0	0	0	5	3	5			
Visits in the country	c, d, e, f, h, i, j, k, l, n	34	3	7	10	11	3	0	4	10	1	2	18			
Hours onshore	b, c, f, g, h, i, k, l, n	18	5	6	5	0	2	11	0	6	1	0	0			
Time spent in different areas	g	1	1	0	0	0	0	0	0	0	1	0	0			
Visited a place in the destination	c, m	9	0	4	4	0	2	0	0	0	1	0	8			
Number of attractions visited	g	1	1	0	0	0	0	0	1	0	0	0	0			
Visited other cities	d	5	0	5	5	0	0	0	0	0	9	0	21			
<i>Psychographic variables:</i>																
<i>Satisfaction with the destination:</i>																
Overall	f, h, n, o	9	3	3	0	3	0	0	0	0	2	2	5			
Touristic areas, activities, etc.	a	5	0	0	0	5	0	0	0	0	3	1	6			
Terminal	l, o	7	0	3	0	3	1	0	0	0	0	1	6			
Transportation	l	1	0	0	0	0	1	0	0	0	3	0	0			
Shopping	k, l	2	0	0	1	0	1	0	0	0	0	0	2			
Food & Drink	e, l, m	5	0	1	0	2	2	0	0	0	2	0	3			
Tranquillity & atmosphere	a, e	8	0	1	0	7	0	0	0	0	6	0	2			
Dislike prices	d, o	16	0	8	5	3	0	0	0	0	2	11	3			
Other aspects	e, i, l, o,	11	1	4	0	5	1	0	0	0	3	14	45			
Intention to recommend	h	1	1	0	0	0	0	0	0	0	1	0	0			
Intention to return	l	1	1	0	0	0	0	0	0	0	0	0	1			
Combined satisfaction variables ^c	f, n	3	2	0	0	0	1	3	0	0	0	0	0			
Motives for disembark	l	1	0	0	0	0	1	0	0	0	1	0	0			
<i>Control variables:</i>																
Port of arrival	a, d, e, n	19	1	6	5	7	0	0	0	0	14	0	9			

(continued)

Table II

Category	Articles	Models ^a		Technique					Estimations ^b					
		OLS	Tobit	Logit	Heckit	Others	+	-	n.s.	+	-	n.s.		
Cruise company	f	2	1	0	0	0	1	0	0	0	2	0	0	
Super-sized ship	f	2	1	0	0	0	1	0	0	0	0	2	0	
Year of visit	i	1	1	0	0	0	0	0	0	0	1	0	0	
Month of visit	a, e	8	0	1	0	7	0	0	0	0	6	6	36	
Season of arrival	h	1	1	0	0	0	0	0	0	0	0	1	0	

Notes: ^aresearch *f* performed four OLS models (in the table just 1 model has been counted, since the 4 models aroused robust results for all the variables included) and four hierarchical regressions (in the table just 1 model has been considered, since the 4 models aroused robust results for all the variables included). Research *n* did three models (in the table just 1 model has been counted, since the 3 models aroused robust results for all the variables included). ^bConsidered significance level at least at 10% ($p < 0.10$). ^cResearch *f* calculated the moderator effect on expenditure of the cruisers travelling with Super-Sized Ships (Satisfaction * SSSh). Research *n* calculated the moderator effect on expenditure of the excursions package (Satisfaction * excursion)

Source: Own elaboration

several studies, though transversal results cannot be generated as they vary according to the difference between the origin of the cruise tourist and the territorial context of the port destination. The impact of income has been addressed in three research studies with interesting results. Results obtained by [Brida and Risso \(2010\)](#) affirm that those cruise passengers with high income levels do not tend to spend money on food and beverages, although the same passengers are responsible for the highest expenditures in jewellery. Meanwhile, [Lee and Lee \(2017\)](#) and [Parola et al. \(2014\)](#) have indicated that higher the income of the cruise tourist, higher the expenditure. The influence of other variables related to the socioeconomic profile of cruise passengers, such as occupation ([Brida et al., 2014](#); [Lee and Lee, 2017](#)), education ([Parola et al., 2014](#)) and marital status ([Di Vaio et al., 2018](#)) have also been tested.

With regard to the travel-related characteristics of the cruise passengers, it has been indicated that bigger the size of the group, higher the expenditure ([Brida et al., 2012a, 2012b, 2014, 2015](#)). The incidence of the frequency of cruising and the number of visits to a destination is not clear. The frequency of cruising has been reported not only as a positively associated variable with the economic consumption of the cruise passengers ([Di Vaio et al., 2018](#); [Marksel et al., 2016](#)) but also as a negatively associated factor ([Parola et al., 2014](#)). There are outcomes that have obtained significant positive association between first-time cruise passengers and the amount of expenditure ([Marksel et al., 2016](#); [Lee and Lee, 2017](#)), whilst others signal the opposite ([Brida et al., 2014](#)) or do not find any statistical relationship ([Brida et al., 2012a, 2012b](#)). Some of the arguments that support the lower expenditure by first-timers are that they are less likely to expand and diversify their experiences in the destination ([Petrick, 2004](#)). In this regard, working to attract repeat visitors has been catalogued as an important strategy to increase the spending at the destination ([Toudert and Bringas-Rábago, 2016](#)). On the contrary, other researchers argue that repeaters' expenditure is lower than those who are first-timers, as repeaters are more interested in services and products that are not directly linked to sightseeing but to a greater extent to historical and cultural activities ([Marksel et al., 2016](#)).

In general, a positive association between the length of stay at a destination with the cruise passengers' expenditure onshore has been widely proven ([Brida and Risso, 2010](#); [Brida et al., 2012a, 2012b](#); [Di Vaio et al., 2018](#); [Gargano and Grasso, 2016](#)). However, regarding the variables related to the activities pursued by cruise tourists at a destination, much less research has been done. It was not until 2016 that GPS devices began to be used to monitor the mobility of cruise tourists at a destination. In fact, indirectly, [De Cantis et al. \(2016\)](#) identified different expenditure patterns among different cruise passenger segments according to their spatial behaviour in Palermo (Italy), arguing that those who used

transportation had higher expenditures. In accordance, [Domènech et al. \(2019a, 2019b\)](#) used GPS devices to analyze the influence of the spatial-temporal behaviour of cruise tourists on their total expenditure onshore by calculating the time spent in different places of the destination and the number of tourist attractions visited. They underlined that those tourists that visit a lower number of tourist sites and spend more time in tourist-oriented, mixed commercial and recreational areas tend to incur higher expenses.

The impact of satisfaction on the cruise passengers' expenditure onshore has also been explored, albeit in a more limited way. Even though different types of variables have been considered in literature, a positive impact of satisfaction of the cruise passengers' expenditure has been detected ([Gargano and Grasso, 2016](#); [Brida et al., 2014](#)). [Di Vaio et al. \(2018\)](#) demonstrated that cruise passengers travelling on a super-sized ship (SSSh) tend to spend significantly less onshore with respect to other passengers. A SSSh is viewed as a destination in itself ([Wood, 2004](#)), as these giant ships have high-quality onboard amenities and services. This arrangement leads the cruiser to spend more money on board the ship. At the same time, SSSh cruisers' spending at a destination is modelled by their satisfaction with the destination.

Overall, the identification and understanding of the determinants of cruise passengers' expenditure ashore can be used to improve the attractiveness and competitiveness of destinations ([Crouch and Ritchie, 1999](#); [Crouch, 2011](#)) in general and the economic benefits that they accrue in particular. The development of such studies is especially valuable because tourists' demands have evolved to the extent that classical target markets have changed and new target markets have emerged ([Mariani et al., 2014](#)). In response, it is important to monitor and evaluate how the attributes of the market segments have transformed ([Crouch, 2011](#)). In adapting marketing strategies in response to shifting trends, however, it needs to be recognised that convergent and divergent results for each indicate are possible for each specific territory. Therefore, depending on the findings, diverse marketing strategies can be implemented to meet the requirements of the typical cruise passenger that the destination receives or aims to attract. According to [Crouch \(2011\)](#), destinations need to focus on ten key spheres when seeking to identify strategies and solutions to increase their competitiveness. The most important of those spheres is the destination's physiography and climate, followed by how the destination deploys and creates quality resources such as culture and history, tourism superstructure, a variety of activities, image and reputation, special events, entertainment, infrastructure and accessibility into and around the destination. In that regard, identifying the determinants of cruise passengers' expenditures can facilitate the improvement of supporting facilities and infrastructures, the enhancement of attractors and the appropriateness of marketing and information about tourist products.

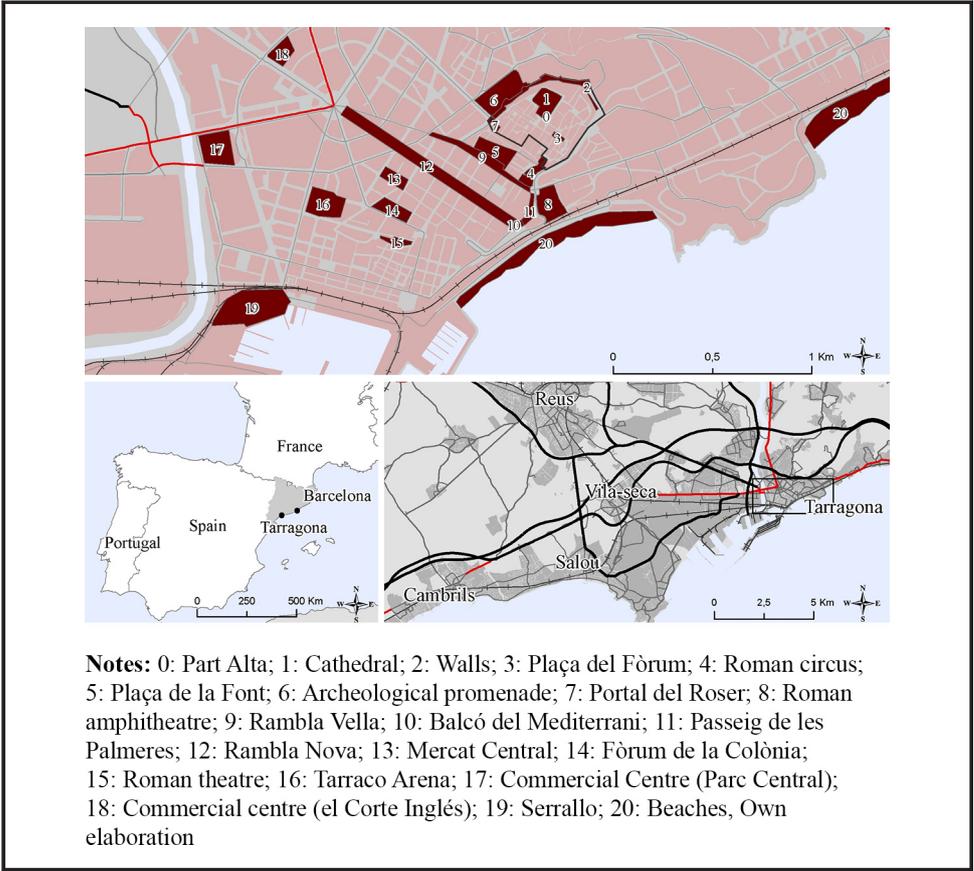
3. Study context

Tarragona has emerged as a new cruise destination in the Mediterranean Sea because of the arrival of one of the most important cruise companies, Costa Crociere. The company has chosen Tarragona as a regular port of call, but it also has used it as a base port. First results were obtained in 2017, when a positive growth of 40,000 cruise passengers was obtained in relation to the previous year when only 13,393 cruise passengers arrived at Tarragona. The location of the city, just 100 km south of Barcelona ([Figure 1](#)), its integration into a first-rate beach tourist destination that attracts around 5 m tourists per year (Costa Daurada tourist brand) and the conservation of archaeological Roman ruins that were granted a UNESCO World Heritage Site designation in 2000, combine to make Tarragona a promising city for developing cruise tourism.

4. Data

According to data provided by the Port Authority of Tarragona, of the 51,390 cruise passengers that arrived in Tarragona on a cruise ship in 2017, 72 per cent were in

Figure 1 Location of Tarragona (lower maps) and identification of places of tourist interest (upper map)



transit. Out of these in-transit cruise passengers, 11,691 participated in organised tours, whereas the remaining 25,461 were potentially cruise passengers that could visit the destination on their own (independent cruise passengers). A study aimed at obtaining information on the cruise passengers' experience onshore was commissioned by the Port Authority to be executed by the Observatory of Tourism of Catalonia. In the period from June to November 2017, a team of expert pollsters with more than 10 years of experience each conducted a survey amongst self-organised cruise passengers after their visit and before entering the cruise through a random sample selection process. A sum of 1,054 questionnaires was obtained and access to the microdata was provided to the authors of this article for research purposes. Out of the completed instruments, 44 were discarded, as they affirmed the participant was not visiting Tarragona. In this regard, as can be seen in [Table III](#), in this article, 1,010 completed surveys were used to develop the analysis.

[Table IV](#) presents the descriptive statistics of the sample. All variables are dichotomous and, thus, each sample observation can only be equal to 1 or 0. Hence, the means must be interpreted as percentages of people surveyed who have given a specific answer. Most of the questions in the survey included more than one possible answer, except those questions related to gender, age, accompaniment, country of origin and expenditure.

Almost 60 per cent of the cruise passengers were from Italy, with only 7 per cent from Spain or France. Half of the sample were tourists from 45 to 64 years old and almost a fourth were

Table III Number of passengers and surveys done per ship

Day	Cruise	Passengers	Surveys
02.06.2017	Costa NeoRiviera	1,600	41
09.06.2017	Wind Surf	310	17
	Costa NeoRiviera	1,600	38
15.06.2017	Aurora	1,874	41
16.06.2017	Costa NeoRiviera	1,600	64
02.07.2017	Thomson Majesty	1,462	62
21.07.2017	Costa NeoRiviera	1,600	60
28.07.2017	Costa NeoRiviera	1,600	66
04.08.2017	Costa NeoRiviera	1,600	57
11.08.2017	Costa NeoRiviera	1,600	56
18.08.2017	Costa NeoRiviera	1,600	59
25.08.2017	Costa NeoRiviera	1,600	43
01.09.2017	Costa NeoRiviera	1,600	53
08.09.2017	Costa NeoRiviera	1,600	41
10.09.2017	Thomson Majesty	1,462	52
15.09.2017	Costa NeoRiviera	1,600	22
22.09.2017	Costa NeoRiviera	1,600	37
25.09.2017	Wind Surf	310	15
29.09.2017	Costa NeoRiviera	1,600	33
30.09.2017	Costa Favolosa	3,800	62
13.10.2017	Costa Favolosa	3,800	44
21.10.2017	Wind Surf	310	10
	Wind Star	148	2
27.10.2017	Crystal Symphony	940	25
03.11.2017	Azamara Quest	694	10
Total		37,510*	1010

Notes: *This table only represents the days of survey, not the full cruise tourism season

Source: Own elaboration from data provided by the Port Authority of Tarragona

older than 64 years old. A total of 48 per cent of the whole sample were accompanied by a partner and 39 per cent by one or more family members. Only 5 per cent of the sample visited other cities during their visit in addition to Tarragona. A total of 60 per cent of the tourists received information before arriving in Tarragona, and 17 per cent looked for tourist information in the city. A total of 23 per cent of the tourists said they had previous knowledge of the city because of word of mouth or information obtained through websites, but just 6 per cent had visited the city previously. The predominant activities followed by the tourists, in a visit of almost 5 h on average, were walking (81 per cent), visiting cultural places (68 per cent) and shopping (47 per cent). The most visited places were the historic quarter Part Alta (81 per cent) and the Roman ruins (74 per cent), whereas souvenirs (31 per cent), clothes (19 per cent), having lunch (23 per cent) and taking a break in a café or a bar (43 per cent) were the most important locations of expenditure. A total of 15 per cent of the cruise passengers did not spend anything at the destination, and the average expenditure per cruise passenger was €21.2, excluding transportation. This is further evidence that the contribution of cruise passengers to the local economy is fairly insignificant (Larsen *et al.*, 2013; Brida *et al.*, 2015).

Some considerations must be made regarding the limitations of the data used. First, although some studies have reported a positive effect of the frequency of cruising on the economic consumption of the cruise passengers (Brida *et al.*, 2012a, 2012b; Marksel *et al.*, 2016), we did not have any data gathered on this aspect. Similarly, the survey did not gather data on income (Brida *et al.*, 2012a, 2012b; Lee and Lee, 2017), occupation (Brida *et al.*, 2014; Gargano and Grasso, 2016; Lee and Lee, 2017) or level of education. Second, Tarragona, as a new cruise destination receives a limited number of repeat tourists and so this aspect has not been included in the analysis.

Table IV Descriptive statistics

<i>Variable</i>	<i>Mean (N = 1,010)</i>
<i>Socio-demographic and control variables:</i>	
Italy	0.59
Spain and France	0.07
Countries located less than 2,000 km from the destination	0.25
Countries over 2,000 km from the destination and overseas territories	0.09
Up to 24 years old	0.05
From 25 to 44 years old	0.25
From 45 to 64 years old	0.48
65 years old and older	0.23
Male	0.48
Female	0.52
Accompanied by friends	0.10
Family trip	0.07
Accompanied by family with children	0.31
Accompanied by partner	0.48
Travelling alone	0.03
Super-sized ship (>3,500 places)	0.11
<i>Travel-related:</i>	
Time of visit (hours onshore):	4 h 56 min 5 s
Visiting other municipalities in addition to Tarragona:	0.05
Walking	0.81
Attending to events	0.01
Using the tourist train	0.20
Having lunch	0.23
Having dinner	0.02
Taking a break in a café, bar or restaurant	0.43
Visiting museums	0.15
Visiting the Upper town	0.81
Visiting the Roman ruins	0.74
Visiting the Cathedral	0.64
Visiting the Central Market	0.20
Going to beaches	0.23
Visiting the Serrallo (maritime neighbourhood)	0.05
Purchasing art	0.01
Purchasing beauty products	0.02
Purchasing souvenirs	0.35
Purchasing electronics	0.01
Purchasing watches and jewellery	0.02
Purchasing wines and liquors	0.02
Purchasing gastronomy	0.06
Purchasing clothes	0.19
Purchasing shoes and complements	0.07
<i>Psychographic:</i>	
Received information before arriving in Tarragona	0.60
Intention to recommend the destination	0.66
Average satisfaction grade with the destination (1-10)	8.61
<i>Expenditure onshore:</i>	
Excluding transportation from the terminal to the city centre*	21.2€
Notes: *Some cruise passengers had free transportation from the terminal to the city centre. Hence, transportation costs covering this itinerary have been excluded	
Source: <i>Own elaboration</i>	

5. Empirical approach

To fulfil the research objective, an ordered logit regression model has been used on the identification of the determinants of the cruise passengers' expenditure. An ordered logit model requires an ordinal dependent variable. Therefore, the total expenditure per capita of the cruise

passengers has been divided into three proportionately equal categories by means of tercile ranges:

$$y = \begin{cases} 1, & \text{if expenditure} \leq \text{€}6.0 \\ 2, & \text{if expenditure} > \text{€}6.0 \leq \text{€}18.0 \\ 3, & \text{if expenditure} > \text{€}18.0 \end{cases}$$

The explicative variables introduced in the model are the ones set out in [Table IV](#). Furthermore, an interaction variable between the satisfaction with the destination and the size of the ship has been included to test if the relationship between the satisfaction and the expenditure is moderated by the size of the ship, as was demonstrated by [Di Vaio et al. \(2018\)](#).

The ordered logit model estimates underlying values as a linear function of the independent variable and a set of cut points. The probability of observing an outcome i (expenditure level) corresponds to the probability that the estimated linear function, plus random error, is within the range of the cut points estimated for the outcome:

$$\Pr(\text{outcome}_j = i) = \Pr(k_i - 1 < \beta_1 x_{1j} + \beta_2 x_{2j} + \dots + \beta_k x_{kj} + u_j \leq k_i - 1)$$

where u_j is assumed to be logistically distributed in ordered logit. The coefficients (β_k) are estimated together with the cut points ($k_1; k_2; \dots$), where k is the number of possible outcomes.

6. Results and discussion

Results obtained by means of the ordered logit models are set out in [Table V](#). Regarding the variables related to the tourists' attributes, a diversity of factors have emerged as determinants for their expenditure. First, the age range is an important variable to explain the cruise passengers' expenditure. In this sense, the younger the cruise passengers, the less they spend onshore ([Brida et al., 2014](#)). Second, as in other studies ([Brida et al., 2012a](#); [Gargano and Grasso, 2016](#); [Marksel et al., 2016](#)), the passengers' country of origin has also emerged as a determinant, increasing the probability of spending, as does the distance of the country of origin from Tarragona. Third, it has been detected that those cruise passengers who travel alone tend to spend more, whereas those who are taking a family trip with children tend to spend less.

With respect to the travel-related variables, both positive and negative influences have been identified. On one hand, significantly negative influences on the expenditure have been detected for those variables related to walking, taking the tourist train, going to the beach and visiting other cities in addition to Tarragona. On the other hand, a significantly positive influence of those variables related to the hours spent ashore, having lunch in Tarragona, stopping for a break in a café or a bar, visiting museums and purchasing all types of products, except electronics and beauty items. These results signal possible strategies that could increase the expenditure at the destination and, therefore, the benefits to the local economy. First, the length of stay in Tarragona has to be promoted among cruise passengers by offering them a diverse range of activities in which they could engage ([Brida et al., 2015](#)). Second, cruise passengers have to be directed to places in the city with mixed commercial and recreational functions where the probabilities of spending are higher than in other parts of the city ([Domènech et al., 2019a, 2019b](#)). Third, complementary leisure activities could be offered in places with less commercial activity, such as beaches, to engage cruise passengers and boost their expenditure.

Finally, regarding the psychographic variables, receiving information before arriving at the destination has emerged as a factor that negatively affects the cruise passengers' expenditure. This could be related to their ability to better plan their stay in the city, making more efficient visits and avoiding "unnecessary" or "unwanted" expenses. In this regard,

Table V Results of the ordered logistic regression

<i>Explicative variables</i>	<i>Coefficient</i>	<i>Std. error</i>
Gender: male	0.071	(0.149)
Up to 24 years old	-1.028	(0.370)***
From 25 and 44 years old		Reference category
From 45 to 64 years old	0.390	(0.186)**
65 years old and older	0.295	(0.240)
Origin: Italy		Reference category
Origin: Spain and France	0.231	(0.317)
Origin: Less than 2,000 km	-0.182	(0.212)
Origin: Further	0.719	(0.296)**
Family trip		Reference category
Friends	-0.208	(0.358)
Family with children	-0.911	(0.304)***
Partner	-0.088	(0.293)
Alone	1.061	(0.501)**
Visiting other municipalities	-0.717	(0.371)**
Walking	-0.453	(0.209)**
Events	-0.479	(0.816)
Tourist train	-0.618	(0.197)***
Having lunch	3.047	(0.230)***
Having dinner	0.836	(0.549)
Taking a break in a café or bar	0.772	(0.155)***
Art	2.846	(0.766)***
Beauty	0.457	(0.610)
Souvenirs	1.914	(0.180)***
Electronics	1.291	(1.322)
Watches and jewellery	1.076	(0.648)*
Wine or liquors	1.400	(0.517)***
Gastronomy	1.640	(0.3423)***
Clothes	3.119	(0.246)***
Shoes and complements	1.931	(0.355)***
Museums	0.460	(0.205)**
Part Alta	0.164	(0.206)
Roman ruins	-0.185	(0.196)
Cathedral	0.206	(0.177)
Central Market	0.008	(0.197)
Maritime neighbourhood	0.539	(0.340)
Beaches	-0.591	(0.198)***
Hours onshore	0.293	(0.049)***
Receiving information before arriving	-0.412	(0.151)***
Average satisfaction grade	-0.035	(0.069)
Intention to recommend	-0.102	(0.176)
SSSh	-3.541	(1.549)**
SSSh * Satisfaction	0.372	(0.034)**
Cutpoint 1	1.385	(0.707)
Cutpoint 2	4.202	(0.723)
Log likelihood: -681.582; R ² : 0.386		

Notes: *Significant at 10% ($p < 0.10$), **significant at 5% ($p < 0.05$), ***significant at 1% ($p < 0.01$)

Source: *Own elaboration*

local authorities have to work together with cruise companies to improve the information that the cruise passengers receive before arriving at Tarragona. Moreover, similar to [Marksel et al. \(2016\)](#), no incidence of the average satisfaction grade with the destination or with their intention to recommend the destination has been detected. However, an interesting trend has been identified regarding those cruise passengers who arrived in Tarragona on SSSh. On one hand, they tend to spend significantly less in the city than cruise passengers arriving on smaller vessels. This is related to the attractiveness of these giant ships and the diversity of amenities and services that they offer. On the other hand, when the satisfaction

of these cruise passengers is considered, a positive and significant relationship is identified. This means that the satisfaction with the destination of those cruise passengers travelling with SSSh plays a key role at the time of spending. These results, that are in line with those obtained by [Di Vaio et al. \(2018\)](#), offer interesting insights to the local authorities as different strategies to boost the economic impact at destination have to be configured depending on the cruise passenger profile and also according to the characteristics of the ship.

7. Conclusion

The data provided in the study reveals a low level of cruise passenger expenditure in the port city. This fact illustrates, as do other studies, the poor contribution of cruise tourists to the local economy ([Parola et al., 2014](#); [Larsen et al., 2013](#)). This makes even more necessary the identification of the determinants that induce cruise passengers to spend more money at a destination to plan and design strategies to boost their expenditures. In this regard, this article has tested multiple variables that the literature has considered as determinants of the self-organised cruise passengers' expenditure, but it also has included underexplored variables such as the activities undertaken ashore and the places visited during the visit.

The findings of the study pose implications for destination marketing and management, for they can be used to improve a destination's attractiveness and competitiveness ([Crouch and Ritchie, 1999](#); [Crouch, 2011](#)) in designing strategies, infrastructure and tourist-oriented products that help to increase the local economic benefits. In particular, the results of the ordered logit model underscore the significant influence of diverse factors (e.g. tourist's country of origin, travel party, age, length of stay and activities planned in the city) on expenditures.

The positive association between the expenditure of tourists and their country of origin when located more than 2,000 km from the destination suggest that specific communication campaigns and pre-cruise marketing for them should be implemented ([Brida et al., 2014](#)). At the same time, since cruise passengers who travel with children spend less money at destinations, more activities to engage them and increase their length of stay ashore could also be promoted, including family-based tourism activities at destinations that offer free meals, especially ones with traditional food options. Moreover, marketing policies to present images of port cities as being adapted for activities and tourist products (e.g. special events and entertainment) for young cohorts could be another interesting strategy to implement, since tourists in that age group tend to spend significantly less ashore ([Brida et al., 2012a](#)).

According to the results obtained, those cruise passengers who receive information before arriving at Tarragona have significantly lower expenditure levels at the destination. Therefore, local government, the port authority and the cruise liners have to work together to adjust the information which the tourists receive before arriving to model their subsequent activity patterns once ashore. In fact, visiting beaches has emerged as a significantly negative determinant of cruise passengers' expenditure. Hence, complementary activities near the coastline should be planned, at the same time that tourist-oriented, mixed commercial and recreational areas of the city have to be marketed among cruise passengers to both prolong their time ashore and increase the probability of involving them in activities that lead to a growth of the local economic impact ([Domènech et al., 2019a](#)).

Although no incidence has been detected of variables related to the satisfaction of the cruise passengers with the visit in general, a positive association has been identified for those cruise passengers travelling on SSSh ([Di Vaio et al., 2018](#)). This means that those cruise passengers, arriving at port cities via SSSh, tend to be more demanding with the

quality of the tourist supply and destination amenities. Hence, their expectations with the destination are higher and their expenditure ashore is strongly conditioned by their perception. In this regard, public and private organisations have to work on the emotional aspect of the cruise passengers, as a good experience at a destination can lead to a higher expenditure ashore and also to a future return as a land tourist or to their recommendation of the destination to acquaintances and relatives (Larsen and Wolff, 2016; Di Vaio *et al.*, 2018). In addition, this work of transferring a good image of the destination has to be extended to the field of social networking sites. According to Tiago *et al.* (2018), well-designed social media and web-driven strategies can be of special utility to project a good image of the destination and consequently generate expectations and attract new cruise passengers. Because projecting such good images increases the competitiveness of the destination (Crouch, 2011), at the time that it enhances tourists' awareness of the destination's endowed (e.g. physical) and heritage-related resources (i.e. historical and cultural), created resources (e.g. tourism infrastructure and special events) and supporting resources (e.g. accessibility, service quality and general infrastructure).

For instance, some strategies to improve the competitiveness of a destination in general and cruise passengers' expenditure in particular can involve not only enhancing marketing for the destination but also managing the flow of cruise passengers. In that regard, new challenges and opportunities have arisen in research on the topic. The design of the urban space, the characteristics of the built environment, and the location of commercial activities could be key determinants of the spatial-temporal behaviour of cruise tourists in the cities (Domènech *et al.*, 2019b) and, therefore, of their expenditure. Hence, studies employing GPS technologies together with traditional gathering methods such as the ones developed by Domènech *et al.* (2019a), De Cantis *et al.* (2016) and Ferrante *et al.* (2016) are good opportunities to cover this underexplored research area. Additionally, more qualitative research could be developed to gather information about the motivation for disembarking at all, as it could be a variable with a high influence on expenditure at the destination and also on the degree of satisfaction with the visit.

Note

1. <https://cruisemarketwatch.com/growth/>

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