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INVESTIGATING THE BEHAVIOR OF EMBARKING CRUISERS IN A CARIBBEAN HOMEPORT: A FACTOR AND A CENSURED-TOBIT ANALYSIS

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Investigating the behavior of embarking cruisers in a Caribbean homeport: a factor and a censured-Tobit analysis

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Abstract

This study analyses embarking cruisers' experience in a homeport. Survey data were collected from passengers that embarked in Cartagena de Indias (Colombia) during the 2009-2010 season. A factor-cluster analysis is developed to segment cruisers identifying the factors that influence their perception and expenditure pattern. Despite the expected total impact for an embarkation port is higher than a port of call, most passengers in Cartagena stay for a short period of time before embarking, hence their contribution to the local economy is rather neglectful. The Tobit analysis has consistently highlighted first time cruisers, with a high education level and belonging to the "long stay cluster" have a higher spending capacity.

Keywords*:* cruise tourism, homeport, factor analysis, censured-Tobit.
Jel Classification: C19; D12 ; L83
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1. Introduction

There are several potential benefits of cruise tourism to a destination, and possibly, this is the main argument used by policy makers to spend millions of dollars building new cruise ship terminals or expanding their infrastructure (Brida and Zapata, 2010). However, there are also negative aspects such as: the cost to support cruise tourism, including docking facilities, displacing or replacing shipping and cargo handling facilities (Dwyer and Forsyth, 1998); the cost of ensuring transport and public security in the destination, emergency medical services, enhancing streets and attractions; the cost of canceling or changing itineraries for a port; in the long term, the damage of marine life and the cost to preserve the destination's tourism inventories (Brida and Zapata, 2010).

A better understanding, on how embarking cruise tourism is developed in a certain destination, would be of great benefit for ports, tourism authorities and the local business communities. For cruise lines, the consideration of any particular port as a homeport mostly relates with location. As an example, in 2007, Royal Caribbean, one of the largest cruise operator, decided to move away from the Caribbean homeport and made Panama's port of Colon the starting point for some cruises. This helped boosting its presence in the region and allowed Latin-American and European passengers to avoid the stringent United States visa requirements necessary for cruises departing from its ports.

The distinction between a port of call and a port of embarkation is critical (De la Viña and Ford, 1998). A port of call is just an intermediate stop, a route to another destination, where cruise passengers spend less than seven hours at the destination. While a homeport is a port where passengers embark and disembark to begin and end their cruise, and vessels often take on supplies. The total impact for an embarkation port is generally higher, with the cruise lines buying higher levels of supplies from port suppliers and passengers potentially staying overnight at regional hotels rather than onboard ship. In homeports such as Port Canaveral (Braun et al., 2002), Hawai (Prat and Blake, 2009), Heraklion (Andriotis and Agiomirgianakis, 2010), among others, cruise business has direct impacts on almost every segment of the travel industry (e.g. transport, hotels and resort, restaurants and attractions). These impacts are generated by the spending made by the ship and its crew, as well as from embarking and disembarking passengers

who stay in town for either one or two nights before or after the cruise trip. According to the experience of Port Seattle (Port Seattle Report, 2003), the homeport cruise activity affects two sectors of the destination economy, that is the maritime service sector and the tourist service sector. The maritime service sector includes the companies that provide services to the cruise ships while in port, such as: chandlers and other local retailers, and wholesalers that provide ship stores and provisions to be used by passengers and crew; towing services that assist vessels in docking and undocking; pilots, who assist the vessels navigating the channels from the open sea to the docks; stevedoring services and dockworkers including handling baggage and ship supplies; line handling services that are required when a vessel enters into the port; bunkering firms that provide fuel to the vessels; parking services for the passengers driving from their place of residence to embark on the ship; ground transfers from the airport and hotels to the ship prior to and after the cruise trip. The tourist services sector consists of companies providing services to the passengers and crew of the current cruises prior to and after the cruise ship. Included in this category are: hotels and motels; restaurants/bars; retail goods; entertainment establishments such as ground tours, movies, amusements, etc.

It is important to distinguish not only the type of ports but also the behavior of the passengers in the destination, that is if they are either at the beginning of their trip or are calling in the destination within the cruise trip. Cruise passengers making a short stop are visitors of a port of call where cruise ships dock. During their short visit (on average 6 hours), cruisers have the opportunity to visit the main attractions of the destination, doing shopping, taking land tours and other activities. These cruisers' activities have recently aroused the interest of researchers in studying the different impacts generated by this type of tourism (Klein, 2003; Dowling, 2006; OMT, 2008; Brida and Zapata, 2010). Passengers beginning their trip on a destination behave in a remarkably different manner. These type of passengers are more likely to be in contact with local population, by using local tourism infrastructure such as: lodging, food and beverages, transport and entertainment. To the best of our knowledge, there are no studies analyzing the embarking cruisers in a homeport.

Currently, there is a significant competition for developing homeports especially in the Caribbean region, but very little research has analyzed the

behavior of this segment within the cruise industry. This study provides an overview of the embarking cruise tourism in Cartagena de Indias, focusing on cruise passenger demographics, preferences and purchase behavior. The empirical analysis is based on survey data collected from passengers that embarked in Cartagena de Indias (Colombia) during the 2009-2010 season. Overall, 402 observations are used. As a first step, a factor-cluster analysis is developed to segment cruisers identifying the factors that influence their perception and expenditure pattern. Despite the expected total impact for an embarkation port is higher than a port of call, most passengers in Cartagena stay for a short period of time before embarking, hence their contribution to the local economy is rather neglectful. As a second step, a censured Tobit investigation is run to examine the different factors affecting the expenditure pattern of cruise ship passengers embarking from Cartagena. This information can be useful for the different stakeholders involved in the cruise sector.

The paper is organized as follows. In Section 2, an overview on the cruise industry in Cartagena is provided. In Section 3, an insight is given on the correspondence and the censured Tobit approaches employed to run the empirical investigation. Section 4 accounts for the questionnaire design and descriptive statistics on the relevant data. In Section 5, results emerging from the correspondence analysis are reported. Section 6 provides an in-depth account on the cluster analysis. In Section 7, empirical results derived from the censured Tobit investigation are presented. Conclusions and policy implications are summarized in the last section.

2. The home port of Cartagena de Indias

Cartagena is a Caribbean port located on the northern coast of Colombia at the northern tip of South America. With a population of approximately 900 thousands inhabitants, Cartagena is the most popular destination for international tourism in the country, and host the main containers and cruise ship port at the national level. The port provides the infrastructure for the private sector to conduct all commercial operations. The actual loading and discharging of vessels is basically carried out by two independent stevedoring companies that contract with the individual cargo and cruise lines. Cartagena is the capital of Bolivar department and is an UNESCO World Heritage Site

for its majestic walled city and fortresses. Strategically situated (close to the Panama Canal, other Caribbean ports, the east coast of the United States and the Gulf of Mexico), this port has appeared in the international home port itineraries since 2008, being an intermediate home port to the Enchantment of The Seas, one of the Royal Caribbean cruise ship. In addition, from October 2009, Pullmantur Cruises and Princess Cruise Line initiated embarking operations in the port. Those achievements were possible by both Government efforts and huge capital investments in cruise facilities by the Sociedad Portuaria Regional de Cartagena (private concessionaire). Cartagena has strengthened as an intermediate embarkation port for cruises and, in reference to Colombia, has established itself as a departure point for tourists of South American cruises. Hence, government efforts will continue with aggressive promotions so that other cruise lines are encouraged to choose Colombia as a home port.

Cruise tourism in Cartagena de Indias is an activity that has been rapidly growing and has become an important aspect of the local economy. The number of cruise ship docks in Cartagena has experienced a significant change in the last years; in fact, the port constitutes 90% of the total cruise passengers market arriving in Colombia. Since 1990's, cruise ships have periodically visited the port. From an interview conducted with the Port Agent Data in Cartagena, during the embarking season 2009, a total of 8,989 cruise passengers embarked in Cartagena.

3. Questionnaire and data description

Based on the literature review and discussions with Cartagena cruise stakeholders (including port managers, tour operators and local and national government tourism offices) a questionnaire was designed. The questionnaire was comprised of five sections. The first section contained questions about respondents' profile, using socio-demographic variables (age, gender, marital status, education, income, and geographic origin). The second section enquired about the visitors' pre-trip issues such as the way to acquire the cruise package, motivations to take a cruise, etc. The third section asked respondents to indicate which activities they had undertaken while staying in Cartagena as well as questions on visitors' expenditure behavior. In the last section, passengers were asked to indicate their

satisfaction with the city and port services to a 15-item, five-point Likert-type scale, ranging from 'extremely dissatisfied' to 'extremely satisfied'. In this section, passengers were also asked to point out their future intentions on their likelihood to return to Cartagena for a land vacation and to recommend the city to relatives and friends.

The questionnaire was translated into two languages: Spanish and English. The population of this study consists of passengers older than 18 years old who embark in Cartagena to begin their cruise trip between October 10 and December 14, 2009. During this period, 12 cruise ships embark in the port with a total of 5,603 passengers. One segment of the population comprised passengers boarding the Ocean Dream Ship (Pullmantur Cruise Line) and the other one, passengers embarking in the Enchantment of the Seas (Royal Caribbean Cruise Line). Table 1 shows the embarking passengers at Cartagena Port during the period under investigation and the main characteristics of the population under study.

Table 1: Characteristics of the embarking population under study

N°	Date	Cruise Ship	Number of Passangers	Gender		Main nationalities of the passengers		Sample size
				F	M	Colombians	Foreigns	
1	10.10.09	Ocean Dream	457	59%	41%	93%	7%	29
2	17.10.09	Ocean Dream	439	62%	38%	82%	18%	33
3	24.10.09	Ocean Dream	504	60%	40%	94%	6%	46
4	31.10.09	Ocean Dream	513	61%	39%	91%	9%	51
5	07.11.09	Ocean Dream	424	64%	36%	86%	14%	10
6	14.11.09	Ocean Dream	419	58%	42%	84%	16%	17
7	21.11.10	Ocean Dream	430	61%	39%	80%	20%	42
8	28.11.10	Ocean Dream	593	59%	41%	95%	5%	49
9	03.12.10	Enchantment of the Seas	212	ND*	ND	ND	ND	25
10	05.12.10	Ocean Dream	628	61%	39%	96%	4%	25
11	07.12.10	Enchantment of the Seas	486	ND	ND	ND	ND	61
12	14.12.10	Enchantment of the Seas	498	ND	ND	ND	ND	14
TOTAL			5603	61%	39%	88,5%	11,5%	402

Source: Port Agent: Eduardo Gerlein y CIA

(*) ND: No data

The sample consists of 402 cases. The questionnaires were randomly distributed in port before cruisers made the check in. The data – collection process was performed by four trained interviewers directly supervised by one of the co–authors of the present paper. The interviewers were given

instructions regarding how to present the study and to encourage the response of the selected persons.

Passenger's profile

The sample consists of 56.2% male and 43.0% female respondents. The great majority of the respondents were from Colombia (93.3%), being the cities of Bogotá and Medellin the main origin. The rest of the population were foreign passengers, mainly from Argentina. Results suggest that the population was well educated with a 61.7% having undertaking university studies. More than 48.0% were in a range of 26 and 45 years old. About 85.0% of the respondents had an annual household income of less than 50 thousand US$ dollars.

The trip

The main channel to acquire the cruise package was the travel agency with a 93.8% of the cases. The most preferred mean on transport to arrive to Cartagena was the airplane with a 77.9% followed by the bus with an 11.2%. For the 84.3% of the passengers it was their first cruise being the younger population the most representative in this group of respondents. More than 80% of the respondents had visited Cartagena before, with an average of visits of nine and a median of five. This result is consistent with the fact the majority of passengers were from Colombia. The itinerary is the main reason for choosing a cruise vacation with a 47.3%. About 36% of embarking passengers stayed overnight in the city. From this group, around 60% spent one night.

In turn, the main type of lodging was the hotel with a 65.8% of the cases, followed by relatives' home (15.1%) and rented apartments (13%); this last type of lodging is very common in Cartagena similar to the modality of apart-hotels in other destinations. It is important to remark that almost the totality of international embarking passengers stayed overnight and the 42% stated to have spent one night coming back from the cruise trip.

The most visited places for passengers who embark in Cartagena were the Old City (22.9%), Beaches areas (15.9%) The San Felipe Castle (13.2%). From passengers who did not stay overnight, less than 5% visited some other tourism locations.

The expenditure

Overall, just 10% stated did not have made any expenditure. The majority of expenditures were on transport, food and lodging; while jewelry, cultural and medical services did not cause any spending. The average of the total expenditure was of U$31, being the older passengers (+66) who show the largest average with an expenditure of U$ 59.2 Expenditure on crafts, internet, tour guides were less than US$10. Just a 23% declared to have spent on lodging and the average of this item was US$71. Just 42.5% of the interviewers declared spending on food and beverages with an overall average of US$24.9, while passengers between 56 and 65 years obtained the highest average expenditure per person with US$ 34.3. The most recurrent expenditure was on transport with a 84% of answer and an average of US$7. According to this study, Cartagena ranks under the average of expenditure presented in the Caribbean home ports. The Florida Caribbean Cruise Association (FCCA) indicates that the regional average is US$102.

Onshore Satisfaction

Given that the most of the respondents did not stay overnight in Cartagena and directly arrived in the port from their cities, they could not provide an answer on their satisfaction. Considering those who respond, the highest satisfaction factors were the Friendliness of residents (93.5%), bus and taxi drivers (89.9%), the weather (89.6%) and the airport infrastructure (88.2%). However, the lowest satisfaction was expressed about street vendors (30.6%), tour guides (40%) and tourism information sites (42.2%).

Cruise passengers were also asked to state their intention to return and recommend the port of Cartagena. A 99.2 % of passengers stated between "likely" and "very likely" their probability to return to the city and 90% to recommend the destination.

4. Methodology

To run the quantitative analysis a non parametric statistical and a parametric approach are employed. The first step of this study is to identify the existence of mutually exclusive groups of passengers. To achieve this objective, a quantitative analysis, organized in two parts, is conducted. In the first part, a correspondence analysis is applied to reveal the underlying factors (or dimensions) in the data. This technique is a special case of factor analysis, where the input variables are qualitative. This procedure is carried

out with the survey items in order to guarantee the absence of correlations between factorial scores. In the second part, based on the correspondence analysis results, a hierarchical cluster analysis is introduced to find homogeneous groups. Cluster analysis consists of grouping similar objects according to their degree of similarity. Objects within each cluster are more closely related to one another than objects assigned to different clusters and each cluster can be distinguished from the others (Brida et al., 2010).

A further step of the analysis consists of running a censured Tobit regression to explore the effects of the variables on the expenditure. Specifically, a censured model is required since there is a potential grouping of values for the dependent variable at a zero value. The Tobit model (Tobin, 1958) enables all the available information stemming from the independent variables to be used, hence incorporating in a single model both the decision either to spend or not to spend and the level of expenditure.

Following Kim et al. (2010), it is assumed that the probability of spending in the categories accommodation, food and beverage and transport is independent of each other. Thus, the probability of spending in accommodation is independent of the probability of spending in food and beverage and the decision of either spending or not in the different categories can be treated as a binary decision.

For each category a binary variable is constructed as follows: expenditure in accommodation, food and beverage, and transport (see Table 2 for a definition).

Table 2: Dependent Variables

Variables	Measurement
Expenditure in accommodation= ACEX	Per capita[a] expenditure in accommodation by embarking cruisers
Food-Expenditure = FBEX	Per capita[a] expenditure in food and beverage by embarking cruisers
Expenditure in transport = TREX	Per capita[a] expenditure in transport by embarking cruisers
Total Expenditure = TEX	Per capita[a] total expenditure by embarking cruisers
Probability to spend on board = PEXB	Per capita[a] expected on-board expenditure by embarking cruisers

Notes: a Variables per capita are computed as the average values spent by all the individuals within a group of tourists. The questionnaire asked for the total expenses of the group.

The general formulation of the Tobit model is as follows:

$$y_i^* = x_i\beta^t + \varepsilon_i,$$

$$y_i = 0 \quad if \quad y_i^* = 0,$$

$$y_i = 1 \quad if \quad y_i^* > 0\,.$$

Where y_i^*, represents the expenditure made by the tourist i in a given category (see Table 2) and the vector of independent variables x_i is the same as specified in Table 3. In the Tobit model the parameters β^t capture the sensitivity of an independent variable to the expenditure in a given category by the average tourist.

Table 3: List of control variables

Name	**Definition**
GEN (reference group male)	This dichotomous variable takes the value one if female, zero if male.
Age (reference group age1825)	*Age1825*: takes one if the tourist is between 18 and 25 years old and zero otherwise; *Age2645*: takes one if the tourist is between 26 and 45 years old and zero otherwise; *Age4655*: takes one if the tourist is between 46 and 55 years old and zero otherwise; *Age5665*: takes one if the tourist is between 56 and 65 years old and zero otherwise; *Age66on*: takes one if the tourist is older than 65 and zero otherwise.
FCR (reference group NO)	This dummy takes the value one if his/her first cruise, zero otherwise.
FVC (reference group NO)	This dummy takes the value one if his/her first time visit in Cartagena, zero otherwise.
SC (reference group NO)	This dummy takes the value one if he/she stayed in Cartagena, zero otherwise.
VOC (reference group NO)	This dummy takes the value one if he/she visited the ancient city centre of Cartagena, zero otherwise.
NVC (reference group NVC3)	*NVC3*: takes one if the tourist has already visited Cartagena less than three times, zero otherwise; *NVC4.6*: takes one if the tourist has already visited Cartagena between four and six times, zero otherwise; *NVC7.12*: takes one if the tourist has already visited Cartagena between seven and twelve times, zero otherwise; *NVC13more*: takes one if the tourist has already visited Cartagena more than twelve times, zero otherwise.
CL (reference group CLSS)	*CLTR: takes one if the tourist was in transit in Cartagena, zero otherwise;* *CLSS: takes one if the tourist stayed for a short time in Cartagena, zero otherwise;* *CLLS: takes one if the tourist stayed for a long time in Cartagena, zero otherwise.*

ED (reference group EDPH)	*EDPH: takes one if the tourist has a primary or high school degree, zero otherwise;* *EDUN: takes one if the tourist has an university degree, zero otherwise;* *EDMP: takes one if the tourist has a master or Ph.D, zero otherwise.*
TR (reference group TRP)	*TRP: takes one if the tourist used a plane to reach Cartagena, zero otherwise;* *TRC: takes one if the tourist used a car to reach Cartagena, zero otherwise;* *TRBO: takes one if the tourist used a bus or other means of transportation to reach Cartagena, zero otherwise.*
NAT (reference group No Colombians)	This dichotomous variable takes the value one if Colombian, zero otherwise.
ST (reference group STS)	*STS: takes one if the tourist is single, zero otherwise;* *STM: takes one if the tourist is married, zero otherwise;* *STO: takes one if the tourist has any other civil status, zero otherwise.*
GRS (reference group GRS1.2)	*GRS1.2: takes one if the tourist was one or two persons, zero otherwise;* *GRS3: takes one if the tourist was with other three persons, zero otherwise;* *GRS4: takes one if the tourist was with other four persons, zero otherwise;* *GRS5: takes one if the tourist was with other five persons, zero otherwise;* *GRS6more: takes one if the tourist was with more than five persons, zero otherwise.*
INC (reference group INC)	*INCL: takes one if the tourist has a relatively low income, less than 25,000 US$, zero otherwise;* *INCM: takes one if the tourist has a medium income, in between 26 and 50 thousands US$, zero otherwise;* *INCH: takes one if the tourist has a high income, higher than 50 thousands US$, zero otherwise.*

The search for the best model requires the exploration of different combination of variables. In this paper, Akaike's information criterion (Akaike, 1974) is used. The AIC is a measure of goodness of fit of an estimated statistical model describing a tradeoff between the accuracy and the complexity (the number of parameters) of the model. Following Akaike (1974), the model with the lowest AIC is selected.

5. Correspondence analysis: results

From the application of Correspondence analysis over thirty-five items, three factors arise explaining 83.6% of the total data variance according to the Benzecrí's index (Escofier and Pages, 1988). The interpretation and denomination results from the values of their loadings are reporting in Table 4. For each factor, the most important variables suggested by the correspondence analysis are presented. The percentage of inertia shows which factors are those that mostly explain the variability of the original data.

Table 4: Factor's names and variables with higher contributions to each factor

	Variable Contribution (%)	% Inertia Explained	% Accumulated Inertia
Factor 1: Overnights in Cartagena		**70.6**	**70.6**
Stop over in Cartagena	11.3		
Number of nights in Cartagena	11.8		
Accomodation	11.6		
Visit to the Old City	8.6		
Accomodation Expenditure	9.8		
Total Expenditure	10.8		
Factor 2: Transportation		**7.7**	**78.3**
Transport used to arrive Cartagena	12.2		
Transportation Expenditure	18		
Total Expenditure	15.5		
Factor 3: Previous visits to Cartagena		**5.3**	**83.6**
First visit to Cartagena	12.4		
Number of previous visits	12		
Nationality	11.6		
City of origin	8.4		
Total Expenditure	10.7		

The first factor obtained "Overnights in Cartagena" identifies those individuals that stay at least one night in the city as tourists, and that have a higher expenditure. This factor is also related with people who visit the Old City. From an operative perspective, the individuals that stayed in the Cartagena are located with positive coordinates.

The second factor "Transportation" reflects the transportation used to arrive to Cartagena, and show the relationship between the total expenditure and the transportation, as a component of the total expenditure. With positive coordinates are located the people who arrived either by plane or car, and with negatives those who arrived either by bus or another means of transport.

Finally, the third factor "Previous visits to Cartagena" discriminates the individuals from Colombia who have had previous visits to the city. With positive coordinates are the people from Colombia, and those who visit the city more than three times.

6. CLUSTER ANALYSIS: RESULTS

The cluster analysis, carried out using a hierarchical classification method, with the factorial scores of the factors obtained below, identifies three groups of individuals. The stopping rules used are the Pseudo-F (Calinski, 1974) and the Pseudo-t test (Duda and Hart 1973). Both tests indicate that the optimal number of clusters is three. The size of clusters is reported in Table 5.

Table 5: Size of the clusters

Group	Size	% of the sample
1	253	62,9
2	59	14,7
3	90	22,4
Total	402	100

Clusters' Description

In this subsection the main characteristics of each group are presented. The general results are given in Table 6. Besides, a one way ANOVA model is run over the satisfaction items. The results are presented in Table 7.

Table 6: Description of the clusters. For some significant statements of the questionnaire, the table shows the percent of members of each cluster in the different categories

	Group 1	**Group 2**	**Group 3**
With Bachelor Degree	59.3	59.3	70
Arrived by plane	78.3	86.4	71.1
First Cruise Ship	86.6	74.6	84.4
First visit to Cartagena	12.6	50.8	3.3
Stop over in Cartagena	1.6	91.5	98.9
More than three nights in the city	0	64.4	21.1
Visit to the Old City	1.2	83.1	44.4
Visit to San Felipe's Castle	0.4	52.5	23.3
Visit to the beaches	0.4	49.2	37.8
Probably return in the future to Cartagena	80.2	81.8	94.4
Annual Income less than U$ 25.000	59.7	42.4	57.8
Between 26 and 45 years old	52.6	32.2	47.8
Colombians	97.2	64.4	100
Married	54.9	59.3	65.6
Expenditure higher than U$ 50 in accommodation	0	42.2	6.7
Expenditure higher than U$ 20 in food	2.8	61	23.3
Expenditure higher than U$ 10 in transportation	2.4	52.5	17.8
Total expenditure higher than U$ 30	11.9	79.7	55.5

Table 7: ANOVA results

	Group 1	Group 2	Group 3	F-Statistic	P - Value
Airport facilities	3.93	4.12	4.08	2.7	0.068
Hotel		4.19	4.08	0.486	0.617
Tourist Information	4.17	3.61	3.32	2.04	0.141
Bus and taxi drivers	4.06	4	3.74	1.77	0.171
The Historical Center	4.29	4.19	3.98	1.77	0.175
Friendliness of residents	4.01	3.98	4.01	0.058	0.944
Cleanness of the city	3.44	3.41	3.00	6.38	0.00
Traffic and Noise	3.44	3.61	3.08	6.25	0.00
The weather	4.00	4.12	4.03	0.56	0.57
Street vendors	3.08	2.67	2.33	3.72	0.03
Harbor Facilities and Services	3.66	3.61	3.57	0.14	0.87
Prices	3.39	3.57	53.59	1.22	0.30

Notes: A One Way ANOVA Model is performed for each statement.

The significance level for each model shows that the clusters' structure is not determined by the satisfaction items.

Group 1: *Passengers in transit.* This group contains 253 individuals (62.9 % of the sample) and is composed by people who did not stay in Cartagena. Most of them were from Colombia (97.2%) and just for the 12.6% was their first visit to the city.

From a demographic perspective, most members were males (55.3%), 52.6% of them was between 26 and 45 years old and 54.9% was married. 59.3% declared to have a Bachelor Degree and, for the 59.7%, the annual income was lower than U$ 25.000. Almost none made visits, for instance, just 1.2% visited the Old City and 0.4% visited the San Felipe's Castle. This is consistent with the profile of visitors probably staying few hours before embarking from Cartagena.

Just 11.9% spent more than U$ 30 in total; nevertheless such an expenditure behaviour is expected according to the visitors' profile.

Group 2: *Long stay passengers in Cartagena*. This group contains 59 individuals (14.7% of the sample) and is composed by people who stayed over in Cartagena, they also show a high spending profile. All the foreigners belong to this group and 64.4% were from Colombia. For 50.8% of tourists, this was their first visit to Cartagena; this figure is driven by foreigners who belong to this group.

From a demographic perspective, 59.3% were males and 54.8% were older than 45. 59.3% was married and 42.4% had an annual income lower than U$ 25.000. As in the first group, 59.3% declared to have a Bachelor Degree. In this case, the tourists are characterized by their visits to different places, for instance 83.1% visited the Old City, 52.5% the San Felipe's Castle and 49.2% the beaches.

42,2% spent more than 50U$ in accommodation that represents the main component of total expenditure. In this case, 64.4% stayed in the city at least three nights, that explains their high total expenditure, while 81.4% stayed in a hotel. Possibly, in this group there are individuals who decided visiting and knowing the city before starting the cruise.

Group 3: *Short stay passengers in Cartagena*. This group contained 90 individuals (22.4% of the sample) and is composed by people who stayed in Cartagena for a short period. Only 21.1% stayed more than three days. All of them were from Colombia and 96.7% had already been in Cartagena before.

From a demographic perspective, 56.7% were males and 47.8% were between 26 and 45 years old. 65.6% was married and 57.8% had an annual income lower than 25.000 US$. In this case, 70% declared to have a Bachelor Degree forming the group with the highest level of education. The individuals also visited several places, but the percentage is lower than in the second group (see Table 6).

Only 6.7% spent more than 50 US$ in accommodation. However, 53.3% stayed in a hotel, that explains why their expenditure is relatively low. Finally, 17.8% stayed in a rent apartment, and 21.1% in family's or friend's houses.

Comparative analysis

Concerning satisfaction, there are not significant differences between groups in almost all the statements. However, the differences are significant in three statements: "Cleanness of the city", "Traffic and Noise" and "Street

vendors". For the first two statements, the averages are similar, close to three, that means that individuals can be regarded as neutral on these issues. However, considering the opinion regarding street vendors, the averages are lower, that implies that the tourists are not satisfied with them. The first group shows the highest average, though the people belonging to this group only stayed a few hours in the city. In general, all the groups are satisfied with all items. The first and second groups have the highest averages.

Regarding to the probability of returning, all groups present large percentages. The highest is obtained for the third group, where 94.4% of individuals declared that it is very likely that they would return to Cartagena. In this case, the distinguishable group is the second one, in the sense that in the first and third group people are mainly from Colombia, that implies returning to Cartagena is easier for several reasons, such as the distance and the transportation's expenditure. In the second group, despite being composed by foreigners, the declared probably to return to the destination is still high, that means that these people are willing in the future to come back to Cartagena as tourists, and also more likely to spend more money than the people belonging to the other groups.

7. ECONOMETRIC RESULTS

Results from the Tobit parametric analysis are provided in Table 8.

Table 8: Tobit regression results

Variables	Expenditure in accommodation (ACEX)	Expenditure in food and beverage (FBEX)	Expenditure in transport (TREX)	Probability to spend on board (PEXB)
Gender (Ref. male)				
Gen	-	-	-	-
Age (Ref. age1825)				
Age2645	-	5.306 (0.193)	-1.384 (0.170)	-
Age4655	-	7.850 (0.077)*	-0.918(0.399)	-
Age5665	-	7.001 (0.168)	-1.074 (0.389)	-
Age66on	-	6.057 (0.313)	-3.773 (0.011)**	-
First time cruise (Ref. No)				

FCR	10.467 (0.012)**	5.784 (0.078)*	-	-
First visit Cartagena (Ref. No)				
FVC	-11.391 (0.019)**	-	-	-
Stay in Cartagena (Ref. No)				
SC	33.229 (0.001)***	-22.316 (0.003)**	-3.230 (0.080)*	-
Visit city centre (Ref. No)				
VOC	-	8.119 (0.043)**	-	-
Number visits (Ref. between 1 and 3)				
NVC4.6	-	-4.534 (0.160)	-1.438 (0.070)*	1.896 (0.776)
NVC7.12	-	3.734 (0.320)	-0.403 (0.659	6.264 (0.417)
NVC13more	-	-4.188 (0.189)	-0.859 (0.272)	16.987 (0.011)**
Education (Ref. primary/high school)				
EDUN	3.855 (0.304)	-	1.014 (0.154)	12.510 (0.038)**
EDMP	10.379 (0.032)**	-	1.624 (0.089)*	27.074 (0.001)***
Transport (Ref. by plane)				
TRC	-	7.739 (0.063)*	-4.958 (0.000)***	-9.247 (0.286)
TRBO	-	-1.957 (0.583)	-2.052 (0.018)**	-14.203 (0.054)*
Nationality (Ref. Non Colombians)				
NAT	-14.297 (0.040)**	-	2.718 (0.036)**	-
Civil status (Ref. Single)				
STM	-	-	-	-

STO	-	-	-	-
Group size (Ref. between 1 and 2)				
GRS3	-	-4.488 (0.178)	-1.378 (0.092)*	-8.010 (0.251)
GRS4	-	-4.412 (0.179)	-3.893 (0.000)***	-18.215 (0.008)**
GRS5	-	-10.339 (0.019)**	-3.890 (0.000)***	-20.596 (0.027)**
GRS6more	-	-6.988 (0.058)*	-4.288 (0.000)***	-32.870 (0.000)***
Clusters (Ref. short stay)				
CLTR	9.854 (0.334)	-29.196 (0.000)***	-7.144 (0.000)***	12.263 (0.046)**
CLLS	43.606 (0.000)***	23.834 (0.000)***	7.992 (0.000)***	15.706 (0.075)*
Income (Ref. less than 25,000 US$)				
INCM	-	-	-	-1.107 (0.840)
INCH	-	-	-	3.295 (0.699)
Constant	-8.163 (0.540)	25.938 (0.007)**	11.461 (0.000)***	27.702 (0.003)***
Sigma	29.948	22.759	5.578	46.346
Number of obs.	402	402	402	381
L statistics (p-value)	191.00 (0.000) ***	144.45 (0.000)***	229.90 (0.000)***	52.21 (0.000)***
AIC	9.692[a]	9.178 [b]	6.361[c]	10.549[d]

Notes: p.values in parenthesis; significative at *10%, **5%, ***1%; a full model AIC=9.777 ; b full model AIC=9.213; c full model AIC=6.417; d full model AIC=10.598.

Overall, each of the models is well specified, as indicated by the *L-statistics* (likelihood ratio chi^2) where the null hypothesis (*i.e.* empty model fits better) fails to be accepted. The final parsimonious specification is identified by using the AIC information criterion, that has been minimized. For continuous variables, the estimated parameters are interpreted in the same manner as ordinary least squares regression coefficients. For dichotomous variables, the predicted value needs to be compared to that of the counterpart. For example, for *ACEX* (Table 8, column 2) the predicted

value of *CL* is 43.61 dollars lower for cruisers who belong to the "long stay cluster" (*CLLS*) than for tourists who belong to the "in transit cluster" (*CLTR*).

Within the sample, 23.6% spent in accommodation before starting the cruise trip. From the censured Tobit analysis (Table 8), it emerges that gender, age, civil status, visit to the old city centre, number of previous visits to Cartagena, transport means, group size and income per capita are not relevant variables to explain the expenditure in accommodation in Cartagena. However, as expected, "stay in Cartagena" (*SC*) and the "long stay cluster" (*CLLS*) have a high coefficient magnitude and are statistically significant. Besides, on the one hand, first time cruisers (*FCR*) and tourists with a high education (*EDMP*) tend to spend more in accommodation; the coefficients of these variables depict a positive sign and are statistically significant. On the other hand, the coefficients of "first visit in Cartagena" (*FVC*) and "nationality" (*NAT*) present a negative sign, that suggests that these type of cruisers are likely to spend less in accommodation when traveling through Cartagena.

Turning to food and beverage expenditure, a different picture emerges. Those tourists who are middle-aged (*age4655*), first time cruisers (*FCR*), visited the old city centre of Cartagena (*VOC*), travel by car (*TRC*) and belong to the "long stay cluster" (*CLLS*) spend more money in food and beverage. On the opposite, tourists who stayed in Cartagena (*SC*), belong to numerous group of people (*GRS5, GR6*) and to the "in transit cluster" (*CLTR*) tend to spend less in food and beverage during their staying at the destination.

The results from the Tobit model give information on the effect that the relevant determinants have on the expenditure in transport. A positive impact is detected for *EDMP* (tourists with a very high level of education), *NAT* (Colombians) and *CLLS* (long stay cluster). While, tourists who are aged over sixty-six (*Age66on*), stayed in Cartagena (*SC*), did between four and six visits to Cartagena in the past (*NVC4.6*), travel either by car (*TRC*), by bus or other means of transportation (*TRBO*), belong to numerous groups (*GRS3,….., GRS6more*) and to the "in transit cluster" (*CLTR*) tend to spend much less in transport.

Finally, the probability to spend on board of the cruise ship (*PEXB*) is also investigated via a Tobit regression. Overall, the higher the number of

previous visits to Cartagena (*NVC4.6,…, NVC13more*) the higher the probability to spend on board. Besides, tourists who belong to the "long-stay cluster" (*CLLS*) are likely to spend more than tourists within the "in transit cluster". One would expect that the former has a higher spending capacity and propensity. Whereas, cruisers who arrived by bus or another mean of transportation are likely to spend on board less than those who arrived by car. Finally, the more numerous the group size is, the less the expected expenditure on board is. This may be the case of families that have higher expenditure constraints than single or small groups.

8. Conclusions and policy implications

This study has analyzed embarking cruisers' behaviour in a homeport. This segment of demand has been rarely investigated in the tourism economic literature. There is no doubt that the selection of Cartagena as an intermediate homeport has given a new dynamism to the city. This designation has given the opportunity to many individuals to make their cruise trip in a more accessible way, without the need to embark from other countries. Besides, it has also avoided the stringent United States visa requirements necessary for cruisers departing from its ports. This explains why most of embarking cruise passengers are Colombian residents.

Hence, it was important to understand the impact that this form of tourism is producing within the city economy. To this aim, survey data were collected from passengers that embarked in Cartagena de Indias (Colombia) during the 2009-2010 season. A sample of 402 observations was gathered. This empirical study has provided a better understanding of the embarking cruise tourism in Cartagena, motivation and visitor´s behavior. Specifically, a large difference in the expenditure pattern has been highlighted for passengers choosing different type of loading during their stay in the city. In this sense, the findings have shown that those passengers spending money in accommodation have the highest average of the overall expenditure in the city with 113 US$. In contrast, those who did not stay overnight and directly arrived to the port, had an average expenditure of 7.5 US$.

The parametric analysis, run via a censured Tobit regression, has consistently highlighted first time cruisers, those with a high education level and those who belonging to the "long stay cluster" have a higher spending capacity. These results suggest that Cartagena's economic agents need to pay

attention to those passengers who do stay overnight, prior to embark, and have the intention to do it after the cruise trip. Hence, tourism providers and local authorities should make enough effort to attract this niche of potential market.

Overall, embarking cruise tourism has proven to have very limited economic impact in Cartagena de Indias. Despite the expected total impact for an embarkation port is higher than a port of call, most passengers in Cartagena stay for a short period of time before embarking. Hence, their contribution to the local economy is rather neglectful. The main reason is due to the fact that tourists in Cartagena mainly tend to use local transport from the airport to the homeport, without spending extra time in the city. Hence, given the current conditions, at a first glance, these consumers may not be regarded as an interesting segment of demand for local tourism stakeholders. Nevertheless, the results have suggested that the highest expenditure comes from the smallest group of passengers who stay overnight (almost the total of foreign passengers). This finding can be considered as the foundation for the design of incentive policies to capture such a segment of demand. For example, it would be economically profitable to facilitate the air connections between South American passengers and the city of Cartagena, hence encouraging tourists to stay over. To this respect, a strong marketing campaign may be enhanced to persuade foreigners to use Cartagena as an international embarking port and a destination to stay.

Marketing policies may also be directed to the segment of population consisting of Colombians, who have previously been in Cartagena, to encourage their staying in the city before or after the cruise trip.

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