Profiling airport travellers based on their perceptions, satisfaction and intention to recommend food and beverage services

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Abstract

Consuming Food and Beverage is one of the most frequent non-aeronautical activities that passengers enjoy at airports and that significantly contributes to airport profitability. Despite this, there is still limited research aimed at analysing passengers' consumption behaviour of F&B. With the aim to contribute to this somewhat under investigated research area, this study applies a factor-cluster analysis on a sample of 1,139 airport travellers. Results from factor analysis reveal four underlying dimensions of F&B perceptions (i.e. atmospherics, staff quality, value of money, product quality) and one dimension related to satisfaction and intention to recommend airport-based F&B services (i.e. "satisfaction and intention to recommend"). Cluster analysis applied to the scores of the five factors reveal that three clusters exist (i.e. "enthusiastics", "neutrals" and "price sensitives"). Chi-squared analysis tests show that significant differences exist based on socio-demographics (i.e. age, education level, employment status), travel-related variables (i.e. frequency of travelling) and flight-related variables (i.e. flying and check-in modality). Contributions to the theory, managerial implications and limitations to the study are discussed, and suggestions for further research are made.

Keywords: Socio-demographics, travel-related variables, flight-related variables, food and beverage services, airport, factor-cluster analysis.

Introduction
In the last two decades, the size of the tourism sector has been steadily increasing and the international arrivals rate has displayed an upward tendency, reaching a value of 6.8% in 2017 (WTTC, 2018). Tourism forecasts reveal that international arrivals are expected to reach

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1.8 billion by 2030 (UNWTO, 2017). Tourism development is intrinsically linked with transportation, the airport system in particular. In 2017, the number of airport passengers worldwide increased by 7.9% (WTTC, 2018) and by the year 2040 it is estimated that the figure will reach 22.2 billion, from which one may determine a potential increase in airport food and beverage (F&B) consumption along with that of retail services (ACI, 2017).

In the last few decades, airports have proven new proactive and marketing-driven approaches, with airports more often representing leisure, retail, and entertainment contexts (Jarach, 2001; Lin and Chen, 2013) pleasing the needs of different market segments (i.e. passengers and air trans-portation employees, tourists, residents, etc.) with an array of different value propositions, among which F&B services are surely the most relevant (e.g. Doganis, 1992; Jarach, 2001). This metamorphosis has given rise to a situation where profitability of airports depends largely on non-aviation related activities (e.g. Graham, 2009; Fasone, Kofler and Scuderi, 2016; Yokomi, Wheat and Mizutani, 2017). According to ACI (2015), non-aeronautical revenue represented over 40% of airports' global profits. In 2010, non-aviation-related revenues accounted for $35 billion, of which $10 billion was generated by food and beverage services (hereafter, F&B) (The Moodie Report, 2014). Consuming F&B is one of the most frequent non-aeronautical activities that passengers enjoy at airports (Castillo-Manzano and López-Valpuesta, 2013; Echevarne, 2008). Lu (2014) reported that 40.7% of airport travellers buy food and beverages. By 2040, total annual airport passengers may reach 22.2 billion which will likely increase airports' F&B and retail services' revenues (ACI, 2017).

This said, and as also stated by recent research (Halpern and Graham, 2003), it has become pivotal for both academics and practitioners to deepen their understanding about passengers' needs, their shopping behaviours and their satisfaction towards the different features of F&B airport-based retail services (i.e. atmospherics, staff quality, product quality and value for money: Lo and

Qu; 2015; Sweeney and Soutar; 2001; Turley and Milliman, 2000). While current tourism-related literature concurs that shopping is one of the most pervasive leisure activities that tourists enjoy while on their holidays (e.g. Correia and Kozack, 2016), limited research has analysed tourist behaviour with respect to retailing services (e.g. Choi, Law and Heo, 2018; Sirakaya-Turk, Ekinci and Martin, 2015); even less has been carried out to examine passengers' behaviours towards airport-based F&B retailers (Del Chiappa, Martin and Román, 2016). Furthermore, academic research applying cluster analysis in order to profile consumers based on their level of satisfaction with different attributes of the F&B services in airports is still – surprisingly - limited (Geuens, Vantomme and Brengman, 2004; Martinelli, 2012; Del Chiappa, Gimenez and Zapata-Aguirre, 2017), especially when considering their socio-demographic (e.g. age, gender, level of education, etc.) and travel-related characteristics (e.g. prior experience, length of stay, etc.). Quite surprisingly, no published papers exist examining the influence of flight-related variables (e.g. check-in modality, frequency of flight, arrival time at the airport before departure). Hence, more studies on airports and on passenger consumer and expenditure behaviour at airports are needed (Moon, Yoon and Han, 2017).

This study was therefore carried out to widen the scientific debate devoted to investigate passengers' consumption behaviours per-taining to F&B services in airport areas (Crawford and Melewar, 2003; Doong, Wang and Law, 2012). Thus, our findings contribute to deepen the scientific debate about this somewhat under-investigated research area considering a wider array of service attributes and of variables (sociodemographic, travel-related and flight-related) potentially able to moderate the passengers' perceptions, satisfaction and intention to recommend. By doing so, the study provides useful information to airport managers attempting to increase the effectiveness of their retail marketing strategies aimed at fulfilling travellers' expectations (Shamma and Hassan, 2013).

The Olbia-Costa Smeralda International Airport, located in the northern part of Sardinia

(due west of Rome and Naples), was selected as the research site to collect data. This airport is considered the main gateway to the Emerald Coast, one of Italy's most well-known and well-established luxury tourism destinations. Specifically, the study applies a factor-cluster approach to profile a sample of 1,139 travellers of Olbia with the aim to answer the following research questions:

RQ1: Are passengers homogeneous in term of their perceptions toward F&B services at the Airport?
RQ2: Are passengers homogeneous in term of their satisfaction with F&B services at the Airport and their intention to recommend them to others?
RQ3: Do clusters differ among them based on the socio-demographics of respondents (i.e. age, gender, marital status, level of education, employment status, monthly household income and place of residence), travel-related characteristics (i.e. frequency of travel, frequency of flying) and flight-related variables (i.e. check-in modality, arrival time at the airport before departure)?

Literature review
According to Popovic, Kraal and Kirk (2010), overall airport experience can be defined as the wide array of activities and interactions that passengers have at the airport; these activities and interactions can be classified into two main categories: those needed to board the flight (the so-called necessary activities) and those that are discretionary in nature, such as shopping and dining.

Based on the utilitarian versus hedonic value dichotomy (Holbrook and Hirschman, 1982), a cornerstone of the retailing literature that needs to be considered when investigating any type of shopping behaviour is the distinction between hedonic and utilitarian motivations (e.g. Babin, Darden and Griffin, 1994; Sweeney and Soutar, 2001), and tourist shopping (i.e. the activity in which tourists participate while on holidays) is no exception (Gallarza *et al.*, 2017). In fact, tourist shopping can be surely considered a holistic experience in which utilitarian, hedonic, social and emotional aspects simultaneously exist, providing tourists with a unique and entertaining local experience (e.g. Murphy *et*

al., 2011). However, this experience has been less investigated in the context of airports despite the relevant role that non-aviation-related revenues have in terms of airport profitability (e.g. Torres *et al*, 2005), with airports nowadays more frequently featuring leisure, experiential and retail contexts (e.g. Crawford and Melewar, 2003; Rowley and Slack, 1999; Wattanacharoensil *et al.*, 2016; Wattanacharoensil *et al.*, 2017).

According to Wattanacharoensil *et al.* (2017), airports are able to significantly influence travellers' experiences for several reasons. First, airports are a relevant tourism-related service encounter for people travelling to tourist destinations, with airport-based F&B retailers symbolising and promoting the local identity and authenticity (e.g. Appold and Kasarda, 2006). Second, a good variety of food choices is considered the strongest predictor of overall passenger satisfaction (Bogicevic *et al.*, 2013) and of the intention to revisit airport lounges (Han *et al.*, 2012). According to Bogicevic *et al.* (2013), dining and shopping options are key dissatisfying factors in one's airport experience, meaning that poorly executed options cause dissatisfaction and complaints. However, they do not result in any compliments when performed well (e.g. Johnston, 1995). Third, airports are perceived by travellers as the first and last impression of a destination for visitors, the interpretative location of destination slogan and image, and integral part of their travelling experience (Wattanacharoensil *et al.*, 2017).

In this scenario, commercial and retail outlets are more often cornerstones of the overall airport experience and crucial elements for any airport manager attempting to stimulate the hedonic experience and excitement of travellers (Ballantine, Jack and Parsons, 2010), to mitigate their travel-related stress and to generate a feeling of passengers' delight (Rowley and Slack, 1999). Chung (2015), for example, used a structural equation model to investigate the extent to which utilitarian and hedonic values are exerted on airport shopping behaviour (i.e. satisfaction and intention to recommend to others), and they found that the hedonic shopping values exert a stronger effect, suggesting that airport shopping involves more multisensory decisions than

cognitive decisions. However, the hedonic and aesthetic aspect of the airport experience impresses air travellers only after fundamental experiences (i.e. functional experience and service personnel) reach a satisfactory level (Wattanacharoensil *et al.*, 2017).

Studies on marketing concur that measuring customer satisfaction and behavioural intentions is certainly a fundamental criterion for companies in any sector, and hospitality and tourism are no exceptions (e.g. Pizam and Ellis, 1999; Torres, 2014). Airport travellers' satisfaction and behavioural intentions can be influenced by socio-demographic variables (e.g. age and gender), travel-related characteristics (e.g. purpose and frequency of travel, travel party size), flight-related variables (e.g. frequency of flying, wait time prior to embarkation), the airport and retailers' atmospherics and layout, service quality and value for money (Castillo-Manzano, 2010; Chen, Batchuluun and Batnasan, 2015; Chung, 2015; Del Chiappa, Martin and Román, 2016; Del Chiappa, Giménez and Zapata-Aguirre, 2017; Entwistle, 2007; Geuens, Vantomme and Brengman *et al.*, 2004; Han, Yu and Kim, 2018; Lin and Chen, 2013; Moon, Yoon and Han, 2017; Namin, 2017; Newman and Lloyd Jones, 1999; Omar and Kent, 2001; Perng, Chow and Liao, 2010; Sacerdote, 2009). In particular, the airport and retailers' atmospherics, wayfinding and layout are relevant given their influence on the ease of passengers' orientation within the airport and their ability to identify the different facilities without feeling lost and disoriented, which in turn influence their actual likelihood to use facilities and to be satisfied (e.g. Lam *et al.*, 2003).

The factors affecting customer satisfaction and behavioural intentions in the specific context of the F&B sector are not simply related to the intrinsic characteristics of the food provided (e.g. quality, taste and variety) (e.g. Namin, 2017). Conversely, other relevant factors include aesthetics (e.g. interior design and layout and external appearance) and service encounters (i.e. the interaction between customer and service staff, and responsiveness and empathy) (e.g. Cao and Kim, 2015; Lin and Mattila, 2010). Furthermore, customer satisfaction and behavioural

intentions with F&B services are influenced by socio-demographics of consumers (e.g. Lee, Cho and Ahn, 2012; Kim and Geistfeld, 2003). For example, Lee, Cho and Ahn (2012) reported that older consumers tend to be more satisfied and less concerned with price and taste compared to younger consumers, while women are more interested in staff responsiveness and service delivery compared to their male counterparts. In their study conducted in airport restaurants, Heung, Wong and Qu (2002) considered three perception factors ('employee attributes', 'reliability' and 'physical features') and showed that employee attributes were the most significant aspects shaping the overall satisfaction of airport travellers as well as their behavioural intentions.

Quite recently, the academic literature has started to investigate consumer preferences and satisfaction towards F&B retailers in airports. Martinelli (2012) reported socio-demographics exerting a moderating effect on satisfaction. In her study, compared to men, women appeared to value retail services located closer to the boarding area, and were more sensitive to prices (when travelling for leisure reasons) and food quality (when travelling for business reasons). In their study, applying a fuzzy approach, Del Chiappa, Martin and Román (2016) reported that age was another moderating factor in airport travellers' satisfaction towards F&B retailers; specifically, the authors reported older travellers as being less satisfied than their younger counterparts. Del Chiappa, Giménez and Zapata-Aguirre (2017) applied a multiple correspondence analysis, a hierarchical cluster analysis and a classification and regression tree to profile air travellers on the basis of their socio-demographic features (i.e. age, gender, education level, occupation, nationality), travel-related variable (i.e. frequency of travel) and level of satisfaction against a list of 13 F&B-related items. According to these results, the authors concluded that airport travellers can be discriminated solely on the basis of age and occupation.

Nowadays, airports face fierce competition and their profitability is largely determined by non-aviation related activities, with F&B-related revenues exerting a key role. As suggested by

consumer behaviour literature (e.g. Cronin and Taylor, 1992), any attempts to assess and improve airport travellers' satisfaction and behavioural intentions towards F&B services in airports becomes pivotal (Cronin and Taylor, 1992). Hence, according to a relatively recent call for future research as well (Graham, 2008), it is certainly relevant to profile travellers based on their level of satisfaction (e.g. Lee, Lee and Wicks, 2004) towards F&B services (as a whole or through an attributes-based view), possibly increasing the number of socio-demographic characteristics and travel- and flight-related variables used in the statistical analysis. Doing so would certainly contribute to broadening the scientific debate pertaining to the topic of F&B consumption in airports and could provide airport managers and retailers with useful information to be applied to effectively target their consumer segments. Despite this potential benefit, the existing literature aimed at examining the afore-mentioned area is limited and further research is needed in order to consider a wider number of F&B-related service features and to investigate whether other socio-demographic characteristics and travel- and flight-related variables may be considered in order to be able to significantly moderate airport travellers' satisfaction and their behavioural intentions towards F&B services. This study was carried out by presenting and discussing the results of a factor-cluster analysis conducted on a sample of 1,139 travellers who used F&B services at the Olbia-Costa Smeralda International Airport.

Method
For purposes of this study, data collection was conducted at the Olbia-Costa Smeralda airport, the gateway to the *Costa Smeralda* (Emerald Coast), one of the most important and popular luxury destinations on the Mediterranean Sea. In 2017, the airport reached 2,808,323 million passengers, of whom around 48% were international ones.
The survey instrument was developed on the basis of existing studies and included two main sections. A qualifying question about whether respondents had consumed F&B related items was included at the beginning of the first part. Only people who answered positively were allowed to complete the questionnaire.

Respondents were then asked to reply to provide information about their socio-demographic profiles (e.g. age and gender), their travel-related habits (frequency of travel, purpose of travel, etc.) and flight-related habits (e.g. check-in modality and waiting time at the airport prior to flight departure). In the second section, respondents were asked to assess their level of agreement with 27 items specifically selected to measure atmospherics, staff quality, product quality, value for money, satisfaction and intention to recommend to others (both online and offline) of the F&B-related retail services they experienced (e.g. bars, fast food joints, restaurants and pizzerias). Specifically, the list of items used to measure aesthetics (12 items) was framed on the basis of the existing literature (e.g. Turley and Milliman, 2000) and redefined or adapted by consulting a group of airport managers and retailers working at Olbia-Costa Smeralda airport, thus allowing a theory-in-use approach (Zaltman, LeMasters and Heffring, 1982). Staff quality and product quality were measured by items sourced from Lo and Qu (2015) and adapted to suit the context of airport retailers (seven items for service quality and two for product quality). Value for money was measured using three items sourced from Sweeney and Soutar (2001). Satisfaction (one item) and intention to recommend to others (two items) were sourced and adapted from Jones and Reynolds (2006) and Zeithaml, Bitner and Dremler (1996). Satisfaction was measured by a single item as it often happens in the existing literature related to different fields and research settings in which retail is included (Ballantine, 2005; Zhou, 2004). A 5-point Likert scale was used to indicate respondents' answers (1 = I strongly disagree, 5 = I strongly agree).

The questionnaire was originally designed in Italian, but since different nationalities could appear in a sampling process with tourists, three questionnaires were prepared by two professional translators (English, German and Italian). A back-translation method was adopted to guarantee quality assurance (e.g. Seddighi, Nutall and Theocharous, 2001). A pilot test with 20 travellers from the abovementioned three nationalities was conducted to assure the comprehensibility of

the questions. No concerns emerged in these pilot tests. Hence, the three final questionnaires were considered definitive.

The data collection was carried out with the support of the airport management who was particularly prone in doing this given their long tradition in supporting research activities run by the University staff, and because of their interest in obtaining marketing insights from the study to be used to further improve their F&B services. Three interviewers firstly undertook a security training section, directly delivered by the airport staff, to obtain the permission to entry the boarding area to interview passengers. Furthermore, the interviewers were subject to a training jointly delivered by the Human Resources Department of the Airport and one of the researchers responsible for leading the research team; this training aimed to train interviewers about when and how to approach passengers and how to support them in filling the survey without interfering in their assessment. Directly supervised by one of the authors, the three trained interviewers collected data face-to-face by intercepting 2,500 individuals in the boarding area from May to October 2015. On an average, the interviewers had access to the boarding area twice a week during specific time frames; this was done in accordance with the airport management necessities so as not to interfere with other marketing research and activities directly conducted by the airport staff. Only individuals aged 18 years and above who had tried F&B services at the airport were asked to participate in the study. At the end of the data collection, a convenience sample of 1,139 complete questionnaires was collected (response rate: 45.56%).

Results
Respondents were mostly middle-aged (35–44 years old: 21.0%; 45–54 years old: 19.9%) females (63.2%), married or cohabiting (55.4%), with a university degree (41.0%), employed (42.2%) and with an annual household income under €15,000 (24.2%) or over €50.000 (23.0%). Respondents were mostly international travellers (52.1%), travelling up to four times per year (61.0%), mostly for leisure purposes (91.8%), flying up to four times a year (68.5%). Interviewees

mostly arrived at the airport 1.5–2 hours before the flight's departure (43.9%).

Overall, the respondents were reported to be satisfied with airport-based F&B services (M = 3.71). Airport travellers were particularly satisfied with aesthetics and scored high on items such as 'The F&B-related retailers have good standards of cleanliness' (M = 4.03), 'The lighting is appropriate and pleasant' (M = 3.96), 'The windows look good' (M = 3.91), 'The aesthetic and architectural aspect of the F&B-related retailers is pleasant and appealing' (M = 3.87), 'The F&B-related retailers have a good layout' (M = 3.87) and 'The decoration inside the F&B-related retailers is pleasant and appealing' (M = 3.86). Respondents were satisfied with staff quality and scored high on items such as 'In general, the staff has an aesthetic and smart appearance and dress' (M = 4.06); 'In general, the staff were courteous, polite and respectful' (M = 3.98) and 'The staff shows competence (knowledgeable and experienced)' (M = 3.93). Relatively high satisfaction levels were reported also for product quality, with respondents scoring high on items such as 'The quality of food and beverage is appropriate' (M = 3.65) and 'The variety of the offer for food and beverage is appropriate' (M = 3.63). Overall, a neutral position was reported to exist in terms of value for money, with airport travellers scoring relatively low on items such as 'Prices of food and beverage of this airport are competitive with other airports' (M = 3.23), 'The products have a good quality/price ratio' (M = 3.22) and 'Prices are reasonable' (M = 3.02). Finally, respondents were reported to be slightly prone to spread a positive word-of-mouth (WOM) advertising, with traditional WOM being more likely to occur than electronic WOM (traditional WOM: M = 3.32; eWOM: M = 3.12).

For this study, we adopted a factor-cluster approach (Hair *et al.*, 2010). Hence, an explorative factor analysis (principal component analysis and varimax rotation) was used to reveal underlying factors in the dataset. Five factors were extracted explaining 71.20% of total variance (Table 1). The Kaiser-Myer-Olkin index (0.954) and the Bartlett's test of sphericity (chi-square = 14,959.24; *p*- value

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Table 1. *Factor analysis*

		Loadings	Eigenvalue	% variance explained	% variance cumulated	Cronbach Alpha
Factor 1: Atmospherics			12.920	47.85	47.852	0.935
A1	The windows look good	0.654				
A2	The lighting is appropriate and pleasant	0.682				
A3	The F&B-related retailers have a good layout (arrangement of space)	0.707				
A4	The background music is pleasant	0.53				
A5	The temperature is pleasant	0.706				
A6	The F&B-related retailers have good standards of cleanliness	0.724				
A7	The scents that you breathe are pleasant	0.731				
A8	The noise is tolerable	0.691				
A9	The signs (to identify areas of products, etc.) are understandable	0.664				
A10	The aesthetic and architectural features of the F&B-related retailers are pleasant and appealing	0.71				
A11	The F&B-related retailers are made so as to effectively manage the movement of people	0.676				
A12	The decorations inside the F&B-related retailers (colours, furniture, etc.) is pleasant and appealing	0.705				
Factor 2: Staff quality			2.159	7.99	55.84	0.952
A13	The staff responds to customer demand accurately and reliably	0.793				
A14	The staff responds to customer inquiries in a timely manner	0.832				
A15	The staff is present, available and can be easily contacted	0.803				
A16	In general, the staff was courteous, polite and respectful	0.825				
A17	The staff is able to communicate in a clear and understandable manner in a foreign language	0.798				
A18	In general, the staff has an aesthetic and smart appearance and dress	0.743				
A19	The staff shows competence (knowledgeable and experienced)	0.766				
Factor 3: Value for money			1.973	7.31	63.15	0.884
A20	Prices are reasonable	0.866				
A21	Prices of food & beverage of this airport are competitive with other airports	0.839				
A22	The products have a good quality/price ratio	0.843				
Factor 4: Product quality			1.109	4.11	67.26	0.866
A23	The variety of offer for food & beverage is appropriate	0.79				
A24	The quality of food and beverage is appropriate	0.759				
Factor 5: Satisfaction and intention to recommend			1.064	3.94	71.2	0.864
A25	Overall, I am satisfied with the food and beverage services at this airport	0.406				
A26	I will speak well of the services of food and beverage of this airport to family and friends offline	0.814				
A27	I will speak well of the food and beverage services in this airport to family and friends on social media (Facebook, Twitter, Tripadvisor, etc.)	0.873				

Goodness of fit: Chi-square = 14959.24 d.f. = 351 Sig = 0.000 – KMO = 0.954

<0.0001) both confirm that the results appropriately explain the data. Cronbach's alpha was then calculated to test the reliability of the extracted factors; all values are 0.86 or higher, suggesting that the factors are reliable (Table 1).

The first factor is labelled 'atmospherics' (47.85% of total variance) and results strongly correlated with items related to retail layout, architectural characteristics, decoration, cleanliness, sounds, lighting, etc.

'Staff quality' (7.99% of total variance) includes items measuring perceived staff quality (e.g. accuracy and reliability, responsiveness, courtesy, language skills, etc.). 'Value for money' (7.30% of total variance) is related to items devoted to measure airport travellers' perception in terms of the quality/price ratio and price appropriateness, also when compared to F&B services in other airports. 'Products quality' (4.11% of total variance) includes two items measuring perceived quality and the variety of F&B offerings. The fifth and last factor is 'Satisfaction and intention to recommend' (3.94% of total variance) and includes items measuring satisfaction and intention to recommend (both offline and online).

The scores of the five principal components were entered into a cluster analysis. Following Hair, *et al.* (2010), a double step method was used. A hierarchical cluster (Ward method–Manhattan distances) was performed and three groups emerged. Then, a non-hierarchical method (*k*-means) was applied to factor scores defining three different groups of airport travellers. Based on the analysis/interpretation of the mean scores that each group of passengers expressed towards the different items included in the survey, the three clusters were labelled as follow: 'Enthusiastics' (individuals who scored very high towards the different F&B attributes/factors, in their overall satisfaction and particularly prone to recommend F&B services to others, both offline and online), 'Neutrals' (individuals who scored on average around three or slightly higher with all the items, thus expressing a kind of neutral position) and 'Price sensitives' (who scored, on the whole, lower than counterparts in the items

related of "value for money", thus suggesting to be more sensitive to price).

Table 2 shows the socio-demographic features, travel-related and flight-related characteristics of each cluster. The 'Enthusiastics' were the biggest cluster (N = 627), including mostly middle-aged females (55.6%) belonging to the 35–44 (21.2%) or 45–54 (23.2%) age brackets, married or cohabiting (56.5%), with a high school diploma or better (42.2%), being employed (43.8%), with an annual household income over € 50,000 (25.7%).

'Enthusiastics' are mostly international airport travellers (53.8%), travelling (63.6%) and flying (70.65%) up to four times per year mostly for leisure purposes (92.8%). They were reported arriving at the airport 1.5–2 hours before their flight's departure (41.6%) and handling their check-in face to face (50.1%).
'Neutrals' (N = 267) includes mostly young females (62.0%) belonging to the 18–24 (16.5%) or 25–34 (30.1%) age brackets, married or cohabiting (51.7%), with a university degree (47.3%), being employees (43.5%), reporting annual household income falling in the €15,000–24,999 span (22.4%) or higher than €50,000 (23.0%). They are mostly international visitors (50.8%), travelling up to four times (54.3%) or five to ten times per year (32.1%), mostly for leisure purposes (94.4%). Neutrals are reported flying up to four times per year (62.8%) and arriving at the airport 1.5–2 hours before the flight departure (42.4%); they mostly check in face-to-face (66.2%).

'Price sensitives' was the smallest segment (N = 245) and included mostly middle-aged females (57.1%) belonging to the 35–44 (28.9%) or 45–54 (18.5%) age groups, married or cohabiting (57.4%), with a high school diploma (38.5%) or a university degree (36.8%), working as employees (37.7%), with an annual household lower than € 15,000 (29.1%). Individuals belonging to this cluster are national (50.0%) and international airport travellers (50.0%), travelling up to four times per year (63.0%) mostly for leisure reasons (93.1%). They were reported to fly up to four times a year (70.0%), arriving at the airport 1.5–2 hours before their flight's departure (50.4%) and checking-in face-to-face (58.0%).

Table 2. *Socio-demographics and travel- and flight-related characteristics of clusters*

	Neutrals	Enthusiastics	Price sensitives	Total
	%	%	%	%
Gender				
Male	38.0	44.4	42.9	42.3
Female	62.0	55.6	57.1	57.7
Age				
18–24	16.5	13.6	21.0	16.2
25–34	30.1	24.8	23.9	26.0
35–44	22.6	21.2	28.9	21.0
44–54	15.0	23.2	18.5	19.9
55–64	12.0	11.4	9.1	11.0
=65	3.8	5.8	8.6	5.9
Marital status				
Single	24.0	23.1	19.7	22.5
Engaged	19.5	15.4	19.3	17.4
Married/cohabiting	51.7	56.5	57.4	55.4
Widow	1.1	1.8	1.6	1.6
Divorced	3.7	3.2	2.0	3.1
Level of education				
Primary school	1.5	0.9	1.2	1.2
Secondary school	4.2	4.8	8.7	5.6
High school	28.1	42.2	38.5	37.6
University degree	47.3	39.8	36.8	41.0
Master's degree	13.5	8.9	13.6	11.2
Other	5.4	3.4	1.2	3.4
Employment status				
Employee	43.5	43.8	37.7	42.2
Retired	3.8	5.9	9.4	6.2
Housewife	4.2	5.3	6.1	5.2
Manager/executive	8.3	10.7	5.3	8.8
Occasional worker	1.9	1.0	1.6	1.4
Student	15.2	10.3	16.7	13.1
Freelancer	17.0	13.7	11.8	14.1
Unemployed	0.4	1.6	2.0	1.4
Other	5.7	7.7	9.4	7.6
Annual Household income (€)				
<15,000	19.1	24.9	29.1	24.2
15,000–24,999	22.4	16.9	17.7	18.6
25,000–34,999	19.7	19.2	16.3	18.7
35,000–49,999	15.8	13.3	20.6	15.5
>50,000	23.0	25.7	16.3	23.0
Yearly frequency of travelling				
1–4	54.3	63.6	63.0	61.0
5–10	32.1	24.2	21.8	25.7
>10	13.6	12.2	15.2	13.3
Yearly frequency of flying				
1–4	62.8	70.6	70.0	68.5
5–10	25.6	21.3	17.3	21.4
>10	11.6	8.1	12.7	10.1
Purpose of travelling				
Leisure	94.4	93.8	93.1	93.8
Business	5.6	6.2	6.9	6.2
How long before the flight departure did you arrive at the airport?				
30–45 minutes	3.8	3.0	3.3	3.3
45–60 minutes	24.6	26.9	20.2	24.7
1–1.49 hours	7.2	7.2	8.3	7.5
1.5–2 hours	42.4	41.6	50.4	43.9
more than 2 hours	22.0	21.3	17.8	20.6
Check-in modality				
Traditional (face-to-face)	66.2	50.1	58.0	56.2
Online	33.8	49.9	42.0	43.8
Place of residence				
Sardinia	11.6	8.0	11.9	9.9
Italy	37.6	38.2	38.1	38.0
Foreign countries	50.8	53.8	50.0	52.1

Table 3 describes each cluster based on airport travellers' perceptions towards F&B retailers' atmospherics, staff quality, service quality and value for money.

'Enthusiastics' score high in term of atmospherics (e.g. 'The F&B-related retailers have good standard of cleanliness': M = 4.27-'The lighting is appropriate and pleasant': M = 4.24-'The windows look good': M = 4.20-'The aesthetic and architectural aspects of F&B-related retailers are pleasant and appealing': M = 4.21), staff quality (e.g. 'The staff has an aesthetic and smart appearance and dress': M = 4.39-'The staff was courteous, polite and respectful': M = 4.33 - 'The staff shows competence': M = 4.32), and product quality (e.g. 'The variety of offer for food and beverage is appropriate': M = 4.06-'The quality of food and beverage is appropriate': M = 4.04). However, they seem to express some concerns in term of value for money and score just slightly positively towards items such as: 'Prices are reasonable': M = 3.38 - 'The products have a good quality/price ration': M = 3.55 - 'Prices of food and beverage of this airport are competitive with other airports': M = 3.60). However, overall, they show a high level of satisfaction (M = 4.24) and intention to recommend to others (offline: M = 4.26, online: M = 4.11).

'Neutrals' seem to show a neutral position towards the most part of the items (all the mean values are ≃ 3). However, they appear to be quite concerned in term of value for money, thus scoring lower than three with items such as 'The product has a good quality/price ratio' (M = 2,86) and 'Prices are reasonable' (M = 2.70). Overall, they are neither satisfied or satisfied ('Overall I am satisfied with the food and beverage services at this airport': M = 3.00) and do not appear actually willing to recommend F&B services at the airport to others, neither offline (M = 2.86) or online (M = 2.76).

Even if at a lower level compared to 'enthusiastics', 'price sensitives' have positive view towards atmospherics, staff quality and product quality (all the mean value are ≃ 4 or slightly higher for atmospherics and staff quality and are ≃ 3 or slightly higher for product

quality). However, when compared to both 'enthusiastic' and 'neutrals', they reported the strongest concerns in term of value for money of F&B offer at the airport. In fact, 'price sensitives' score low or really low with items such as: 'The products have a good quality/price ratio' (M = 2.95), 'Prices of Food and Beverage of this airport are competitive with other airports' (M = 2.83) and 'Prices are reasonable' (M = 2.61). Overall, they reported a slightly positive level of satisfaction (M = 3.43), but surprisingly they scored the lowest mean value in terms of intention to recommend to others (offline: M = 2.01, online: 1.61) when compared to individuals in the other two clusters.

Finally, a series of chi-square tests ($χ^2$) were conducted to ascertain whether significant differences existed among the clusters based on socio-demographic and travel- and flight-related variables (Table 4).

The results revealed that significant differences exist between the segments in terms of age ($χ^2$ = 21.189, *p* = 0.020), education levels ($χ^2$ = 30.328, *p* = 0.001), employment status ($χ^2$ = 29.855, *p* = 0.019), yearly frequency of travelling ($χ^2$ = 9.844, *p* = 0.043), yearly frequency of flying ($χ^2$ = 9.700, *p* = 0.046) and check-in modality ($χ^2$ = 18.450, *p* = 0.000). No significant differences were reported to exist in terms of gender ($χ^2$ = 2.995, *p* = 0.228), marital status ($χ^2$ = 6.254, *p* = 0.619), monthly household income ($χ^2$ = 13.230, *p* = 0.104), purposes of travelling ($χ^2$ = 0.385, *p* = 0.825), arrival time at the airport before their flight's departure ($χ^2$ = 7.891, *p* = 0.444) and place of residence ($χ^2$ = 4.141, *p* = 0.387).

Overall, our results confirm some prior studies while rejecting others, as well as adding some completely new and fresh knowledge to further deepen the scientific debate devoted to analysing airport travellers' usage behaviours of F&B services.

For example, the fact that airport travellers' views towards different F&B service features and their satisfaction levels were reported to be the lowest for 'neutrals' which is the segment with the highest number of women (62.0%), which seems to confirm that women tend to

Profiling airport travellers based on their perceptions, satisfaction and intention to recommend food and beverage services.

Table 3. *Cluster analysis*

		CL1 Neutrals – N = 267	CL2 Enthusiastics N = 627	CL3: Price sensitives N = 245	Total – N = 1139
		Mean	Mean	Mean	Mean
	Factor 1: Atmospherics	- 0.304908	0.1555948	- 0.0659082	
	Factor 2: Staff quality	- 1.139306	0.238793	0.6304958	
	Factor 3: Value for money	- 0.0747936	0.122779	- 0.2327043	
	Factor 4: Product quality	- 0.378158	0.2131835	- 0.1334607	
	Factor 5: Satisfaction and intention to recommend	0.0746205	0.463464	- 1.2674105	
A1	The windows look good	3.4	4.2	3.88	3.91
A2	The lighting is appropriate and pleasant	3.4	4.24	4	3.96
A3	The F&B-related retailers have a good layout (arrangement of space)	3.32	4.17	3.85	3.87
A4	The background music is pleasant	3.16	3.84	3.34	3.54
A5	The temperature is pleasant	3.44	4.13	3.83	3.88
A6	The F&B-related retailers have good standards of cleanliness	3.56	4.27	4.04	4.03
A7	The scents that you breathe are pleasant	3.46	4.12	3.79	3.86
A8	The noise is tolerable	3.4	3.97	3.55	3.72
A9	The signs (to identify areas of products, etc.) are understandably	3.2	4.1	3.61	3.74
A10	The aesthetic and architectural aspect of F&B-related retailers is pleasant and appealing	3.33	4.21	3.77	3.87
A11	The F&B-related retailers are made so as to effectively manage the movement of people	3.26	4.08	3.63	3.76
A12	The decoration inside the F&B-related retailers (colours, furniture, etc.) is pleasant and appealing	3.31	4.18	3.82	3.86
A13	The staff responds to customer demand with accuracy and reliability	2.94	4.22	4.1	3.85
A14	The staff responds to customer inquiries in a timely manner	2.93	4.26	4.13	3.88
A15	The staff is present, available and can be easily contacted	2.97	4.23	4.18	3.89
A16	In general, the staff was courteous, polite and respectful	3.05	4.33	4.27	3.98
A17	The staff was able to communicate in a clear and understandable manner in a foreign language	3	4.24	4.09	3.87
A18	In general, the staff has an aesthetic and smart appearance and dress	3.24	4.39	4.26	4.06
A19	The staff showed competence (knowledgeable and experienced)	3.05	4.32	4.1	3.93
A20	Prices are reasonable	2.7	3.38	2.61	3.02
A21	Prices of food & beverage of this airport are competitive with other airports	2.93	3.6	2.83	3.23
A22	The products have a good quality/price ratio	2.86	3.55	2.95	3.22
A23	The selection of food & beverage is appropriate	3.01	4.06	3.41	3.63
A24	The quality of food and beverage is appropriate	3.06	4.04	3.5	3.65
A25	Overall, I am satisfied with the food and beverage services at this airport	3	4.24	3.43	3.71
A26	I will speak well of the services of food and beverage of this airport to family and friends offline	2.86	4.26	2.01	3.32
A27	I will speak well of the services of food and beverage of this airport to family and friends on social media (Facebook, Twitter, Tripadvisor, etc.)	2.76	4.11	1.61	3.12

Table 4. *Chi-square tests*

	Chi-square	Sig.*
Gender	2.955	0.228
Age	21.189	**0.020***
Marital status	6.254	0.619
Level of education	30.328	**0.001****
Employment status	29.855	**0.019***
Monthly household income	13.230	0.104
Number of trips per year	9.844	**0.043***
Number of flights per year	9.700	**0.046***
Purpose of travel	0.385	0.825
How long before the flight did you arrive at the airport?	7.891	0.444
Check-in modality	18.450	**0.000****
Place of residence	4.141	0.387

*Significant at the 0.05 level - **Significant at the 0.01 level (significant values in bold)

have higher expectations than men (e.g. Lee, Cho and Ahn, 2012; Oh, Parks and Demicco, 2002). However, the fact that chi-square tests show that no significant differences exist between clusters in terms of gender seems to contradict prior studies (e.g. Martinelli, 2012), although they confirm others showing similar evidence (e.g. Del Chiappa, Giménez and Zapata-Aguirre, 2017). Our findings also confirm prior studies reporting women being particularly sensitive to prices and food quality (Martinelli, 2012) and atmospherics (Borges, Babin and Spielmann, 2013). In fact, the lowest scores in the items used to measure 'atmospherics', 'value for money' and 'product quality' were reported to exist for individuals belonging to 'neutrals' and 'price sensitives'-the two segments with the highest number of women. Furthermore, our study reporting employment status being able to significantly differentiate clusters confirms that of Del Chiappa Giménez and Zapata-Aguirre, (2017). Significant differences between segments were also found in terms of age, thus confirming the results of Del Chiappa, Martin and Román (2016) and Del Chiappa, Giménez and Zapata-Aguirre (2017). However, it needs to be mentioned that both these studies reported older travellers to be less satisfied with F&B services at airports. On the contrary, in this study, the lesser satisfied segments ('neutrals'

and 'price sensitive') were mostly composed by young travellers aged 18–34 years (neutrals: 46.6%, price sensitive: 44.9%) when compared to 'enthusiastics' (38.4), thus confirming Cao and Kim's (2015) study carried out in non-airport-based restaurants. This evidence could be explained by the observation that most individuals belonging to 'enthusiastics' are reported to travel and fly with a lower annual frequency (travelling, 1–4 times: 63.6%, flying, 1–4 times: 70.6%) compared to 'neutrals' (travelling, 1–4 times: 54.3%, flying, 1–4 times: 62.8%) and 'price sensitives' (travelling, 1–4 times: 63.0%, flying, 1–4 times: 70.0%). In other words, because of their overall lower frequency of travelling and flying, 'enthusiastic' folks could be less critical in judging F&B services (e.g. Ha and Jang 2010; Severt, Tesone and Murmann, 2006; Tax, Brown and Chandrashekaran, 1998).

Quite interestingly, our study also found differences between clusters with regard to the way in which airport passengers were reported to undertake their check-in modalities (i.e. face-to-face versus online), an aspect that has never been be previously investigated in any studies on F&B consumption and expenditure behaviour at airports. Specifically, our results show that airport-views towards different F&B service features and their overall satisfaction

were lower for 'neutrals' and 'price sensitives,'- the two segments including mostly individuals checking-in face-to-face. This evidence could be explained by arguing that individuals checking-in face-to-face tend to arrive earlier at airports when compared to the time taken by their counterparts who do not queue at the check-in desk. Hence, 'neutrals' and 'price sensitives' would have the possibility to experience extended and prolonged service encounters. This, in turn, would offer them (i.e. 'neutrals' and 'price sensitives') the possibility of increasing their opportunities to interact with and be influenced by the different F&B service features, thus resulting in more critical and experienced consumers.

Conclusion
Although non-aeronautical revenues worldwide, particularly those related to F&B services, have experienced remarkable growth, research aimed at analysing airport travellers' perceptions towards the different aspects of F&B and their satisfaction and behavioural intentions is still in its early stages (e.g. Del Chiappa, Martin and Román 2016; Del Chiappa, Giménez and Zapata-Aguirre, 2017, Martinelli, 2012). Further, to the best of our knowledge, there has been just one study (Del Chiappa, Giménez and Zapata-Aguirre, 2017) aimed at profiling travellers' perceptions and satisfaction pertaining to airport-related F&B services. However, the number of F&B service features considered in this case was limited, as was the number of socio-demographic features and travel-related variables that were investigated as factors being potentially able to discriminate between different clusters. No attention was paid to flight-related variables (e.g. check-in modality and arrival time at the airport before the flight departure). Therefore, this study broadens the scientific debate surrounding the topic, thus answering recent calls for further research aimed at deepening our understanding about airport travellers' consumption behaviours (e.g. Graham, 2008), enlarging the number of socio-demographic features in particular, along with travel- and flight-related variables considered as being potential moderating factors of F&B consumption behaviours at airports.

Overall, the findings reveal that airport travellers have a positive view towards F&B services in term of atmospherics, staff quality and product quality, while some concerns exist in terms of perceived value for their money. On the whole, the overall satisfaction regarding F&B offerings is slightly positive, while respondents do not appear to be particularly willing to recommend airport F&B to others overall, especially online.

However, cluster analysis applied to the scores of the four factors identified through the exploratory factor analysis ('atmospherics,' 'staff quality,' 'products quality,' 'value for money' and 'satisfaction and behavioural intentions') showed that airport travellers perceptions, satisfaction and behavioural intentions are not homogenous. Specifically, three clusters were identified: 'enthusiastics,' 'price sensitives' and 'neutrals,' with 'enthusiastics' being the biggest segment. According to research on restaurant experience (e.g. Hurst, 1970; Pugh, 2001), this study highlights that cleanliness and comfort, staff responsiveness and courtesy and speed of service (Pratten, 2004) need to be considered as key attributes in shaping airport satisfaction with F&B services (Bogicevic *et al.*, 2013; Del Chiappa, Giménez and Zapata-Aguirre, 2017). The results confirmed that in airport-related F&B services, significant differences between the clusters were reported on the basis of certain socio-demographic features (i.e. age, level of education, employment status), travel-related aspects (i.e. yearly frequency of travel) and flight-related variables (yearly frequency of flying and check-in modality). However, no significant differences were found in terms of gender, marital status, monthly household income, place of residence, purpose of travelling and arrival time at the airport before flight departure.

For example, 'neutrals' and 'price sensitives' were reported to be more likely women and youngsters, with higher frequency of travelling and flying, particularly sensitive to prices, food quality and atmospherics and having lower scores in terms of overall satisfaction and behavioural intentions, thus supporting prior studies (e.g. Borges, Babin and Spielmann, 2013; Cao and Kim, 2015; Lee *et al.*, 2012;

Martinelli, 2012). Our results reveal no significant differences in terms of gender, contradicting some prior studies (e.g. Martinelli, 2012), while confirming others (e.g. Del Chiappa, Giménez and Zapata-Aguirre, 2017), indicating that future studies in different airports and geographical circumstances are needed to be carried out in an attempt to further confirm the robustness of the insights offered in existing literature devoted to analysing airport travellers' behaviours towards F&B services at airports. Furthermore, our findings contribute completely new knowledge to the extant literature, revealing that significant differences exist between clusters in terms of check-in modality, with airport travellers checking-in face-to-face having less positive views towards F&B services at airports and being less satisfied compared to their counterparts checking-in online.

These conclusions are significant for both researchers and hospitality managers. On the one hand, they provide further insights into the scientific debate on passengers' consumption behaviours pertaining to F&B services in airport areas, widening the number of both F&B-related service features and socio-demographic and travel- and flight-related variables that can be considered as potential moderating factors of airport travellers' perceptions, satisfaction and behavioural intentions. Furthermore, the fact that our findings confirmed some prior studies while rejecting others adds to the body of knowledge by highlighting the evidently inconsistent relationship between airport travellers' views, satisfaction and behavioural intentions and their socio-demographic features, along with travel- and flight-related variables. Finally, to the best of our knowledge, this study is the first study showing that the check-in modality (i.e. face-to-face versus online) is a moderating factor that needs to be considered when studying passengers' consumption behaviours with respect to airport-based F&B services.

On the other hand, these findings provide airport managers and airport-based retail managers with information that may be used to effectively manage their offerings and service design. First, they suggest that effort should be made to recognise nuances in the way airport

travellers consume products and services, thus assessing F&B services on the basis of their socio-demographic features, plus travel- and flight-related characteristics, so that overall retail services may be designed to better reflect the characteristics of their target consumers. Thus, for example, airport managers and airport-based retail managers should invest in continuous improvement of their offerings (in terms of atmospherics, staff quality and product quality) to meet the expectations of women and experienced travellers and/or to push the price/quality ratio higher when dealing with younger folk. Doing so would, in turn, contribute to capturing the travellers' preferences and expectations, making them more satisfied, and more prone to talk positively about the F&B offerings at the airport (Moon, Yoon and Han, 2017). In this direction, it would be also certainly useful to consider the findings from this study as useful in initiating a tracking process aimed at assessing the extent to which marketing and promotion activities actually contribute to enhancing airport travellers' satisfaction with F&B services. Furthermore, the fact that some segments (i.e. 'enthusiastics**,'** and, particularly, 'price sensitives') were reported not to be particularly prone to spread e-WOM about F&B services, despite being satisfied with the F&B offerings, suggests that airport and retail managers should proactively incentivise their customers to post a comment or review online. In doing so, airport managers and retailers could use modern reputation management systems that first ask their customers to assess their satisfaction towards their experience with F&B services at airports and then ask just those customers providing assessments falling in a positive range to post a comment and review. Finally, our results suggest that airport and airline managers should keep their attention focused when deciding to incentivise their customers who check-in online. In fact, on the one hand, incentivising passengers to check-in online can certainly contribute to reduce queuing time both at traditional check-in points and when going through security, thereby increasing passengers' satisfaction and contributing to reducing the number of employees needed to manage traditional check-ins. However, our results suggest that airport travellers who check-in online are

usually less positive in their views, satisfaction and intention to recommend the airport-based F&B services to others. That said, airport managers and airline managers should decide to incentivise web check-in after comparing the costs and benefits of both alternatives (traditional and web-based check-in), carefully considering the effect that the different check-in modalities exert.

In spite of the theoretical and managerial contributions, this study is not free of limitations. First, the study used a sample which is highly site-specific (i.e. data was collected at one and not multiple airports) and not representative of the overall population under investigation (i.e. airport travellers at the Olbia-Costa Smeralda Airport). These circumstances render our findings hardly generalisable. In the future, it would be useful to repeat the study at other airports and geographical circumstances to further confirm the robustness of our results. Second, although this study considered a wider number of variables that could moderate airport travellers' perceptions, satisfaction and behavioural intentions towards F&B services, other variables remained unexplored (e.g. travel party size, personality traits, emotions exuded and prior experience in using F&B services at the airport selected as research setting); these variables can be taken into account in future research. Furthermore, our study did not investigate passengers' consumption behaviour towards different types of F&B services that currently exist at the airport (e.g. bars, fast food joints, restaurants and pizzerias). This outcome occurred despite the fact that previous restaurant-related studies show that consumer perception, values and satisfaction differ based on the type of restaurant experienced (e.g. Ha and Jang, 2013). Hence, future studies could consider the possibility of investigating passengers' perceptions, satisfaction and behavioural intentions towards different types of F&B retailers at the airport. The third limitation is conveyed by the fact that it is difficult to confirm all retailers' features in detail. This fact, in turn, makes it difficult to explain the reason why certain airport travellers were reported to express the given levels of satisfaction or dissatisfaction. Therefore, future studies can consider the possibility of

conducting a qualitative study (or a mixed-method study-perhaps an explanatory mixed-method approach) to gain a more comprehensive understanding and explanation about what exactly was satisfying and unsatisfying for airport travellers and what they would have liked to have experienced in order to have been more satisfied. For example, rather than simply knowing that certain passengers were dissatisfied with certain service features (e.g. the retail layout, the interior design and the staff dress code and appearance.) it would be more useful to know how they would have liked to see those service features (e.g. how the retail layout should have been or the interior design and how the staff might manage their remarks and body language to be perceived as politer). This amelioration will allow us to be more effective in contributing to a further development in the current body of knowledge devoted to analysing travellers' shopping behaviours in airports; in addition, it will provide even more pragmatic and detailed suggestions to airport managers and retailers wanting to increase the satisfaction level in their target markets.

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