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Visitor satisfaction at the museum: Italian versus foreign visitors

Abstract

Trying to understand what comprises and influences visitor satisfaction is one of the most relevant areas of research for the tourism sector. The aim of this study is to analyse which factors influence overall satisfaction with visitors to the museum, with particular interest in national origin, feelings, and motivations. The research is based on 1,038 questionnaires collected from June to December 2011 among the visitors of the South Tyrol Museum of Archaeology (Ötzi) in Bolzano, Northern Italy. Logit models were used in order to estimate the set of independent variables which significantly influence both the overall satisfaction of the sample and the differences between Italian and foreign visitors in the perception of satisfaction. The results suggested that the overall satisfaction was related to the national origin of respondents, their feelings and motivations. Furthermore, opinion about showrooms and other services received during the visit appears to be positively and significantly related to overall satisfaction. From this knowledge, museum managers are more equipped to offer the optimal museum experience, as are museum marketers in their advertisement campaigns in Italy and abroad.

Key words: overall satisfaction; feelings; museum; Logit model; Italy

Introduction

Since the early 1990s, public museums have been subjected to change, resulting from "a refocusing of government policy; a well-educated community with higher expectations of museums and desires of better reflection of contemporary issues in museums" (Rentschler, 2007). In the past, museums were institutions established and managed by the state. Nowadays, many museums, in particular art museums, are partially or fully financed by private institutions or regional funds. Among the most important museums privately funded are the Beyeler museum (Basle, Switzerland), the Fondation Cartier pour l'Art Contemporain (Paris), and the Zabludowicz Collection (London). As a result, the role of museums has changed. According to the code of ethics formulated by the American Association of Museums (AAM, 2000), the present scope of museums is to provide a service to the public by means of collecting, preserving, exhibiting and educating with materials that are owned, borrowed, and/or fabricated for these ends (AAM, 2000). Besides this main role, museums have to become more commercialized and

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profit-oriented in order to be able to generate income for self-financing or justify financing through donations and public support. The museums must "compete" with other sectors, such as education and healthcare, in order to obtain governmental and regional funding. Therefore, the directors and managers of the museums need to constantly prove their efficiency, providing the donors with clear economic results regarding the museums' operations. An important element that is used to measure the museums' efficiency is their ability to keep visitors satisfied and returning. Moreover, satisfied visitors tend to transmit their positive opinion to a third party (Armario, 2008) through word-of-mouth and by doing so they become the museums' "cost-free advocates". As Huh (2002) stated, the study of visitor satisfaction is particularly important for museum managers in order to "meet the expectations of their visitors and so enhance loyalty and reducing marketing costs, ensuring sustainability". In addition, this knowledge could be useful to museum marketers in their research on adoption of proper advertisement and marketing strategies, especially in such a highly competitive market. In this context, studies regarding the investigation of the characteristics, feelings, emotions, behaviours, and satisfaction of the visitors are fundamental for the marketers and directors of the museums.

From a theoretical point of view, the concept of customer satisfaction is ambiguous and no consensus on a common definition or an adequate model have so far been found. The models and methods designed to measure customer satisfaction were originally developed in product management. Traditionally, the satisfaction was defined in three ways: a cognitive state measurable by comparing and weighting the costs and benefits of the purchase (Harrison & Shaw, 2004; Tse & Wilton, 1988; Churchill & Surprenant, 1982); a sacrifice and/or a reward as stated by Oliver and Swan (1989) in their equity theory; a comparison of the consumer's feelings and attitude before and after the consumption (Hughes, 1991). These methods have been subsequently applied to satisfaction in travel and heritage tourism, because "motivation and satisfaction are two essential elements that determine individual behaviour in the field of tourism" (Devesa, Laguna & Palacios, 2010). In this context, the visitors' satisfaction at the museum remains an important topic that needs further in-depth research and improvements.

This study aims to contribute to the literature by determining the factors that influence the perception of the visitors' overall satisfaction experienced during the visit at the museum. In addition, this study focuses on the analysis of the differences between Italian and non-Italian visitors in the perception of the overall satisfaction experienced during the visit. The dataset used for this study was collected from an ad-hoc survey conducted from June to December 2011 at the South Tyrol Museum of Archaeology, located in Bolzano (Northern Italy), which hosts the permanent exhibition of the mummy Ötzi, "the Iceman".

The paper is organized as follows: Section 2 briefly reviews the literature on visitors' overall satisfaction regarding both the theoretical models adopted and the most influencing factors; Section 3 illustrates the main characteristics of the museum, the survey method and the econometric model; Section 4 reports the descriptive statistics, while Section 5 reports the empirical results. Finally, Section 6 discusses the findings, draws conclusions also in terms of practical implications for policymakers and private operators, as well as providing future research perspectives.

Visitors' satisfaction

The theoretical models

The Expectancy-Disconfirmation Paradigm (EDP) proposed by Oliver (1980) is the most widely applied theoretical model of consumer dis/satisfaction (Oh & Parks, 1997; Weber, 1997). The EDP suggested that consumers compare current products, consumption experiences or services with prior expectations about the same experiences. Therefore, customer satisfaction is a psychological state, or a "gap", felt during the consumption experience and resulting from the dis/confirmation of the consumer's prior feelings and expectations about the purchase (Czepiel, Rosenberg & Akerele, 1974; Day, 1980; Oliver, 1997). Expectations are viewed as the primary measurement of satisfaction and if the consumption experience exceeds these expectations, the person would be satisfied. According to Churchill and Surprenant (1982), the complete dis/confirmation paradigm consists of four levels: expectations (prior to performance); perceived or actual performance; dis/confirmation (obtained by the comparison between expectations and performance); and dis/satisfaction (the outcome of the purchase). The EDP model has been applied to the specific context of visitors' satisfaction reached during the visit of museums (Hou, 2009; Shi, 2008; Yue & Hou, 2007; Yan & Wei, 2006; Rogers, 1998). Despite the increasing dominance, Yüksel and Yüksel (2001) focused on the limitations and unresolved issues concerning this model in the assessment of customer satisfaction with hospitality and tourism services. According to the cognitive approach of satisfaction (Klaus, 1985; Chadee & Mattsson, 1996), the consumer ascribes objective attributes to one product and the satisfaction is the result of a subjective cognitive evaluation of these attributes.

In the tourism field, Jin and Huh (2002) analysed the effect of both different destination attributes and travel characteristics on the overall satisfaction. Kim, Chan and Baum (2007) applied Herzberg's Motivator and Hygiene Factor theory in order to explain the perception of service quality and guest satisfaction. Armario (2008) tested the relationships among overall tourist satisfaction, motivations, and activities of the tourist destination considered, i.e. Andalusia. Mendes, Valle, Guerreiro, and Silva (2010) examined tourist satisfaction and destination loyalty in Portugal. They find that the relationship between satisfaction and destination loyalty is stronger among older tourists, tourists possessing higher education and Portuguese (domestic) tourists. Navratil, Picha and Navratilova (2012) analysed the impact of several factors on satisfaction with the visit to water-based natural attractions, confirming the following causal path: pull motivation → perceived quality → perceived value → satisfaction. In the niche of the museum field, Rowley (1999) investigated the relationship between quality, expectations, and involvement in the context of the Bishop Museum (Hawaii). Harrison and Shaw (2004), and Huo and Miller (2007) studied museum visitors focusing on the effect of perceived quality, facilities, and demographic characteristics on visitor satisfaction and on future intentions to revisit.

Some researchers have suggested that the EDP and the cognitive approach are rather incomplete and they proposed emotional aspects as additional or complementary dimensions to the cognitive one (Yu & Dean, 2001; Wirtz, Mattila & Tan, 2000; Olive, 1993). Westbrook (1980) suggested that satisfaction also consists of emotions which are directly connected to dis/satisfaction. Woodruff, Cadotte and Jenkins (1983) described satisfaction as a link between cognitive and emotional processes, because feelings respond to the cognitive state of dis/confirmation. In the tourism field, this approach has

been examined in travel agencies, accommodation, destinations and tours (Rodríguez del Bosque, San Martín & Collado, 2006; Yoon & Uysal, 2005; Kozak, 2001). Han and Back (2007) proposed a relation between consumer emotion and guest satisfaction, arguing that these elements are important for the measurement in the lodging industry context, due to the intensive interaction between employees and customers. Rodríguez del Bosque and San Martín (2008) proposed the adoption of a cognitive-affective model in order to study the interrelationships existing among the psychological variables (such as attitudes, prior beliefs, post-experience assessments, behavioural intentions, emotions, and satisfaction) which characterized the tourists. In the particular museum context, Rogers (1998) suggested a relation between visitors' satisfaction at the museums on one side and demographic characteristics, general life satisfaction, and emotion, represented by a "nostalgia" index, on another. De Rojas and Camarero (2007) investigated visitors' satisfaction with Queen Isabel Interpretation Center proposing a complementary affective opinion along with the cognitive approach, confirming the correlation between perceived quality, emotions, and satisfaction.

In the context of heritage tourism, this kind of model, characterized by a combination of the cognitive and the emotional approaches, is natural since the tourist experience consists of several independent elements, both tangible and intangible. Even if the comparison between expectations and perceived quality of the experience is fundamental in measuring satisfaction, emotions are also essential elements of cultural activities. The integration of emotions in the concept of satisfaction is particularly relevant given the majority of services are based upon consumers' participation and experience (Szymanski & Henard, 2001).

In conclusion, Sirgy (1984) proposed the congruity model of consumer behaviour. The author argued that customer dis/satisfaction is not simply an evaluative function of expectations and perception of performance but also of the consumer's self-image and product image congruity. In other words, the consumer's self-conception should be analysed in detail in order to understand consumer's dis/satisfaction in its essence. In the tourism field, customer dis/satisfaction becomes a function of both the evaluative congruity of tourist's expectations about the location and the anticipated results of the experience, and the tourist's self-image and the destination's value-expressive image. Therefore, studies in tourism are often dedicated to the relation between self-congruity and tourist satisfaction (Back, 2005; Ekinici & Riley, 2003; Litvin & Goh, 2002) or self-congruity and travel behaviour (Sohn & Juan, 2011). Furthermore, Abdallat and Emam (2012) applied the self-congruity model in their study on Malaysia, subjected to the analysis of the country's destination attractiveness through two important constructs of visitor self image: actual and ideal image.

The main factors influencing the visitors' satisfaction

Satisfaction is a function of dis/confirmation and it can be defined as "a judgment that a product, or service feature, or the product or service itself, provides a pleasurable level of consumption-related fulfillment, including levels of under or over fulfillment" (Marcussen, 2011; Oliver, 1997). Westbrook (1987) defined satisfaction as a "global evaluative judgment about product usage/consumption". Therefore, satisfaction depends on prior expectations and fulfilment (Anil, 2012; Oliver, 1997).

The prior expectations are the individual's beliefs about how a product is likely to perform in the future (Oliver, 1980). In this way, the individual "creates a frame of reference about which one makes a

comparative judgement" (Oliver, 1980) and, as a result, these beliefs influence the level of satisfaction significantly. Therefore, the expectations become the standard against which to compare something and the satisfaction becomes the instrument to assess past experiences, performance of products and services, as well as tourist attractions and destinations (Bramwell, 1998; Ringel & Finkelstein, 1991; Ross & Iso-Ahola, 1991). According to Tian-Cole et al. (2002), visitors' overall satisfaction can be viewed as "a summation state of the psychological outcomes they have experienced over time". Therefore, a high or low level of overall satisfaction can be induced through multiple positive or negative experiences during a visit.

As Huo and Miller (2007) suggested, the overall satisfaction of the museum experience comprises perceptions about each attribute of the museum such as facilities, services, staff, museum environment, acceptability (such as prices, parking places, opening hours among others), and perception of authenticity (see also Brida, Pulina & Meleddu, 2012a; Brida, Disegna & Scuderi, 2013a; Brida, Osti & Disegna 2013c). Visitors evaluated each of these elements, first individually and then all together in order to create their overall image and satisfaction of their visit to the museum. Therefore, it is advisable that museum managers should take into consideration each of these aspects of the museum experience in order to achieve the optimal economic results.

Empirical research has provided evidence that visitors' overall satisfaction is an adequate instrument to evaluate the quality of the experiences at different settings such as parks and wilderness areas (Lee & Kyle, 2010). Furthermore, the perception of the degree of satisfaction is a subjective evaluation linked to different emotions. The causal relationship between satisfaction and emotions has been widely studied in literature (Liljander & Strandvik, 1997; Stauss & Neuhaus, 1997; Dubé et al., 1996; Hui & Tse, 1996; Price, Arnould & Deibler, 1995; Mano & Oliver, 1993; Westbrook & Oliver, 1991; Westbrook, 1987). In the tourism field, Yüksel and Yüksel (2007) have demonstrated that emotions play an important role in creating visitor satisfaction with shopping at a tourism destination. Bigné and Andreu (2004) studied the relationship between emotions and tourist attractions, such as museums and theme parks. Madrigal (1995) tested a model of sport fan satisfaction based on the notion that emotions influence satisfaction.

Armario (2008) stated that motivations which push people to make decisions are closely linked to their needs, wants, and expectations, which in many cases result in a greater personal satisfaction.

A review of relevant literature showed that the socio-demographic and economic characteristics of the respondent influence the overall satisfaction, also regarding the tourist experience. In general, the level of satisfaction seemed to be related to age (Pickle & Bruce, 1972), personal competence (Westbrooke and Newman, 1978), level of education (Valle, Silva, Mendu & Guerreco, 2006; Pickle & Bruce, 1972), and total family income (Mason & Himes, 1973). Valle et al. (2006) also identified a relation between satisfaction and nationality, and between satisfaction and gender, while Mason and Himes (1973) showed a relation between satisfaction and marital status. In tourism, Sparks (2000) conducted an extensive survey on tourism satisfaction on the Gold Coast, Australia. Regarding the influence of gender, age, marital status, and type of weather experienced during the visit, the author found a significant relation only between satisfaction and gender, and between satisfaction and weather. In particular, female tourists presented a greater level of satisfaction with beaches, cafes/restaurants, shopping and theme parks, while those who reported good weather during their Gold Coast stay were

significantly more satisfied in general. Other studies suggested that origin, age, and gender affected visitor satisfaction (Pearce & Mustard, 1998; Pearce et al., 1997; Chafee & Mattson, 1996; Yi, 1990). In the particular field of visitor satisfaction at the museum, Kawashima (1998) suggested "the socio-economic class of a visitor and the level of educational attainment strongly correlates with the habit of museum visiting". Huh (2002) observed a significant relationship between overall satisfaction with cultural/heritage sites and gender, in particular female tourists were more satisfied than male tourists.

Data and methodology

The museum

The research involved the South Tyrol Museum of Archaeology (shortened to Ötzi) located in Bolzano, the main city of South Tyrol region, Northern Italy. Opened in March 1998, this museum covers the history and archaeology of the southern Alpine region from the Palaeolithic and Mesolithic (15,000 B.C.) up to 800 A.D. and it hosts the permanent exhibition of Ötzi, "the iceman", the oldest and currently best preserved natural mummy from the Neolithic period. Ötzi and the artefacts found with him occupy a central position in the exhibition area of 1,200 square metres.

The National Geographic describes him as the oldest intact member of the human family (Hall, 2007). Ötzi was accidentally discovered in September 1991 in the Ötztal Alps, near the border between Italy and Austria, by two German hikers. At first sight, it was thought he was an unfortunate victim of the mountains. After many sophisticated examinations regarding the authenticity of the mummy, the researchers established that it was one of the oldest mummies in the world, dating back 5,000 years. Due to its good preservation status and the presence of several belongings (pieces of clothing and other objects), it has attracted researchers from around the world, inspiring them to investigate the living conditions of ancient men. For instance, his fire lighting kit and the copper axe (considered the world's oldest intact copper axe) uncover the sophisticated technique of tool creation of the era. The discovery of Ötzi has become a worldwide sensation not only for scientists and anthropology specialists but also for the public, curious to see and to know more about Europe's oldest human ever found.

The mummy can be seen by museum visitors from a window onto the so-called "Iceman Box", a refrigerator that maintains Ötzi at a particular temperature and in ideal humidity conditions. In 2011, 229,456 people, accounting for 15% of the total visits in the museums of Bolzano city (ASTAT, 2012), visited this museum. This extraordinary and unique discovery has become the main cultural attraction of the city of Bolzano (Brida et al., 2012b), attracting an ever-increasing number of tourists from all over the world, providing a boost to the local economy.

Research methods

The research is based on a survey conducted from June to December 2011 among the visitors of Ötzi. A total of 1,038 interviews were successfully conducted with, both, Italian (46.9%) and non-Italian visitors (53.1%). In order to encourage cooperative behaviour, respondents were informed that the research had exclusively scientific aims, and that impartiality in the treatment of the data analysis was guaranteed. Furthermore, a pilot survey was carried out to test the questionnaire before conducting

the full survey, in order to avoid bias related to its structure and wording. Interviews were held with visitors exiting the museums after their visit, in selected working and weekend days of the four months of data collection and during different time periods of the day. Only one person per travel party was selected. The convenience sampling method was adopted as there was no sufficient information on the characteristics of visitors of the museums in order to apply a probabilistic design.

The questionnaires were anonymous and self-administered in three languages (Italian, German, and English) and a research team member was present in order to help in case of questions or doubts that emerged among interviewers. The questionnaire was structured in three sections. The first concerned information related to the visit to the museum including motivations, feelings about the experience, perception of some aspects related to Ötzi. Section 2 included trip-related characteristics, whereas the third section was related to socio-economic and demographic characteristics of the interviewees and their families such as gender, age, education, occupation, and income. In appendix, the most important variables for the following analysis are described.

The econometric model

The objective of this study was twofold: i) to determine the variables which influence the overall satisfaction to the visit at the museum; ii) to identify which variables best explain the differences between Italian and foreign visitors in the overall satisfaction with the visit.

The overall satisfaction with the visit was measured on a 5-point Likert scale, anchored on [1] *Very unsatisfied* and [5] *Very satisfied*. For the purpose of our analysis, the overall satisfaction was recoded into a binary variable taking value 1 if the respondent was generally very satisfied with the visit (i.e. respondent gives a score equal to 5) and 0 otherwise. This binary variable was used as dependent variable (y) of the models estimated in order to give an answer to our objectives.

The Logit model has been widely used in literature (Tsaour et al., 2002) in order to test the significance, the verse (positive/negative effect), and the intensity of a set of independent variables in influencing a dichotomous dependent variable. An alternative model is the Probit whose results are very similar to those obtained through the Logit (Wooldridge, 2001). However, the Logit has the advantage of its results being interpretable in terms of *Odds* expressing the propensity of the dependent variable to assume the value 1. The Logistic regression model can be expressed as:

$$P(y_i = 1) = \frac{\exp(\alpha + \beta' \mathbf{x}_i)}{1 + \exp(\alpha + \beta' \mathbf{x}_i)} \quad (1)$$

where α is the intercept, β is a K -dimensional vector of parameters and \mathbf{x}_i is a K -dimensional vector of explanatory variables for the i -th observation. The estimated coefficients of each independent variable do not have a direct interpretation as in linear regression models, due to nonlinearities in the relationship. Logistic regression (equation 1) can be linearized through the Logit transformation. This transformation is simply the natural logarithm of the *Odds*, i.e. the ratio between the probability of an event occurring and the probability that it does not happen, calculated as follows:

$$\frac{P(y_i = 1)}{1 - P(y_i = 1)} = \exp(\alpha + \beta' \mathbf{x}_i) \quad (2)$$

This implies that for each k -th explanatory variable ($k=1, \dots, K$), the term $\exp(\beta_k)$ is the change in the *Odds* (usually called *Odds Ratio*) for a unit increase in the k -th explanatory variable, holding other variables constant. In the case of a dichotomous variable, this term must be interpreted as the variation in the *Odds* in relation to the reference category.

Descriptive analyses of the sample

Characteristics of the respondents and of the visit to the museum

Most visitors come from abroad (53.1%), mainly from Germany (35.8%), covering on average about 1,665 km (standard deviation 2,674 km). The Italian visitors (46.9%) mainly come from Lombardia (10%), Trentino-South Tyrol (7.3%, of which the majority come from the province of Bolzano), Veneto (6.7%), and Lazio (5.3%) region (Figure 1) covering on average 330 km (standard deviation 249 km).

Figure 1.

Map of the Italian region



Table 1 compares socio-demographic and economic characteristics of the respondents and their families by geographical origin. The demographic profile of the sample indicated that the majority of respondents were males (51.7%), mostly married (75.3%), middle aged (45 years old on average),

with a university degree or postgraduate qualification (63%), earning an annual household income of less than €50,000 (37.7%). A majority (57.7%) had a full or part-time job while 19.2% described themselves as self-employed. Italian females seem to be more attracted by Ötzi than foreign female visitors. In comparison to foreigners, Italian visitors were more likely to be single, younger, with a higher level of education, self-employed or in other occupations, but reporting a lower annual household income (8.42% of the Italian visitors earn more than €75,000 against 24.16% of the foreign visitors in the same income class).

Table 1
Socio-demographic and economic characteristics

	Whole sample	Italian	Foreign	p-value
Male (%)	51.67	46.79	56.63	***
Married (%)	75.27	71.89	78.43	**
Age (<i>mean</i>)	44.57	41.83	46.90	***
University (%)	63.00	66.45	61.07	*
Km (<i>mean</i>)	1,031.57	330.14	1,664.87	***
<i>Occupation (%)</i>				***
Self-employed	19.19	21.67	16.98	
Employed	57.68	54.08	60.88	
Retired	8.89	5.58	11.83	
Student	4.85	4.94	4.77	
Other occupations	9.39	13.73	5.53	
<i>Household annual income (%)</i>				***
€0 – 25,000	10.46	16.21	5.39	
€25,000 – 50,000	27.25	35.16	20.26	
€50,000 – 75,000	14.51	11.37	17.29	
> €75,000	16.78	8.42	24.16	
Missing income	31.00	28.84	32.90	

Notes: *p*-value is the significance of the Chi-square test (qualitative variables), *z*-test (dichotomous variables), and *t*-test (quantitative variables).

All test results are not significant unless indicated otherwise: *** Significant at $p \leq 0.01$, ** Significant at $p \leq 0.05$,

* Significant at $p \leq 0.1$

As reported in Table 2, respondents were accompanied, on average, by one or two people, 35% of them made the visit with children of up to 12 years of age, and only 14% with an organized group and/or with friends/colleagues. Respondents have visited both permanent and temporary collections (39.4%), or just permanent collections (38.8%) and half of the visits were made during weekends (Friday, Saturday, and Sunday). On average, the respondents have visited 4 other museums in the last 12 months, and only 6.7% of the respondents have attended other cultural activities offered by the city of Bolzano, where Ötzi is located. In comparison with foreigners, Italian respondents preferred to make the visit with children of up to 12 years old (43%); therefore the average number of members of the family who visit is higher. The Italian and foreign visitors were significantly different because the first group was more attracted by the temporary exhibitions while the second by the permanent

collections. Italians visited mainly during weekends, have visited on average a smaller number of other museums during the last 12 months, but they have participated in cultural activities offered by the city of Bolzano more than foreigners have.

Table 2
Characteristics of the visit to Ötzi

	Whole sample	Italian	Foreign	<i>p</i> -value
<i>Visiting party</i>				
Household size (<i>mean</i>)	2.43	2.56	2.32	***
Children (%)	34.68	42.74	28.07	***
Group (%)	13.49	14.53	11.90	
<i>What did you visit in the museum?</i>				
Permanent collections (%)	38.80	30.42	45.96	***
Temporary showroom (%)	20.53	29.54	12.76	***
Permanent and temporary (%)	39.39	39.61	39.21	
Visits during weekend (%)	49.90	60.42	40.11	***
Number of museums (<i>mean</i>)	4.42	4.00	4.86	**
Other cultural activities (%)	6.70	9.85	3.80	***

Notes: *p*-value is the significance of the z-test (dichotomous variables) and *t*-test (quantitative variables). All test results are not significant unless indicated otherwise: *** Significant at $p \leq 0.01$, ** Significant at $p \leq 0.05$, * Significant at $p \leq 0.1$

Satisfaction, motivations, and feelings

Of the respondents, 42.7% were generally very satisfied with the visit to the museum (i.e. respondents give a score equal to 5) and Italian visitors seem to be significantly more satisfied than foreign visitors (47.7% against 39%). Table 3 reports a set of items measuring the motivations of the visitors, as well as particular aspects related to the perception of Ötzi. Regarding the motives that led respondents to visit the museum (push factors), satisfying curiosity (52.1%), having a specific interest (48.7%) and learning something new (40.8%) reported the highest frequencies. Italians were significantly different from foreigners because they were less interested in satisfying curiosity, learning something new, doing something that one ought to do, occupying some leisure time, or because it is something worthwhile doing. Italians and foreigners visited the museum to relax and because of a specific interest in such an attraction in almost equal proportion (no significant differences are observed).

Visitors who have a specific interest in such an attraction or make the visit because they want to learn something new were significantly more satisfied than the other visitors. Ötzi was mainly considered as a place describing an historical era (94.8%), as well as a fascinating (90.5%) and authentic (88.5%) attraction. Significant differences were noticed between Italian and foreign visitors concerning the way they perceive the museum. Italian visitors more frequently described Ötzi as a place that makes you think, while foreign visitors more frequently perceived this museum as just a tourist attraction and a unique place in the world. The very satisfied visitors (i.e. visitors who give a score equal to 5) considered

Ötzi more frequently as unique in the world, a place that makes you think, a way to describe an historical era, a fascinating and authentic attraction, while less satisfied visitors (i.e. visitors who give a score to the visit between 1 and 4) more frequently considered this museum as just a tourist attraction.

Table 3
Reasons for the visit and agreement with some aspects of the museum (%)

	Whole sample	Italian	Foreign	<i>p</i> -value ^a	Very satisfied	Less satisfied	<i>p</i> -value ^a
<i>Why have you visited the museum today?</i>							
To satisfy curiosity	52.12	41.89	61.71	***	52.74	51.44	
Rest/Relax	7.90	6.74	9.29		8.90	7.33	
A specific interest in such an attraction	48.65	47.37	50.56		55.94	43.27	***
To accompany a friend/family member	11.56	13.68	9.48	**	11.19	12.10	
To learn something new	40.75	34.32	47.21	***	46.35	36.29	***
Something which one ought to do	12.14	10.32	13.75	*	13.70	10.90	
Doing something worthwhile	18.89	13.89	23.42	***	21.00	17.38	
To occupy some leisure time	11.66	6.95	15.99	***	13.01	10.56	
<i>Do you agree with the following statements?</i>							
Just a tourist attraction	20.65	10.65	28.99	***	14.93	24.18	***
Unique in the world	73.05	68.56	76.65	***	79.81	68.11	***
A place that makes you think	76.80	85.50	69.28	***	84.35	71.53	***
A way to describe an historical era	94.76	94.38	95.07		96.52	93.31	**
A fascinating attraction	90.48	90.75	89.88		94.64	87.28	***
An authentic attraction	88.47	87.45	89.39		93.16	85.23	***

Notes: ^a *p*-value is the significance of the z-test on the equality of two proportions.

All test results are not significant unless indicated otherwise: *** Significant at $p \leq 0.01$, ** Significant at $p \leq 0.05$, * Significant at $p \leq 0.1$

A list of 12 feelings experienced during the visit at the museum was measured on a 5-point Likert scale, anchored on [1] *Not at all* and [5] *Very much*. Table 4 reports the median and average composition for each feeling, as well as the significance of the Kruskal-Wallis test. This test was used in order to test the null hypothesis of equal median of each feeling variable between Italians and foreigners, and between very satisfied and not very satisfied visitors. Respondents declared they had learned something new, had fun, had been astonished by something, and had experienced feelings of pleasure, serenity and happiness during the visit. Foreigners felt more guided or directed, comfortable and safe, astonished by something, had fun, and were more serene and happy compared to Italian visitors. On the other hand, Italian visitors felt slightly more tense or nervous during the visit than foreigners. The very satisfied respondents attributed a higher score to the positive feelings (learned something new, felt at ease and safe, had been astonished by something, experienced feelings of pleasure, serenity and happiness, and had fun) and a lower score to the negative feelings (felt lost or disoriented, tired or discomfort, bored, tense or nervous, felt that they were wasting time) than the less satisfied respondents with the visit to the museum.

Table 4
Item describing the feelings about the experience at the museum (median, mean in brackets)

	Whole sample	Italian	Foreign	<i>p</i> -value ^a	Very satisfied	Less satisfied	<i>p</i> -value ^a
<i>With which degree have you experienced the following feelings?</i>							
Feeling lost or disoriented	1 (1.20)	1 (1.19)	1 (1.20)		1 (1.13)	1 (1.24)	***
Feeling tired or discomfort	1 (1.33)	1 (1.34)	1 (1.33)		1 (1.25)	1 (1.40)	***
Losing the notion of time	2 (2.36)	2 (2.32)	2 (2.42)		2 (2.51)	2 (2.26)	***
Felting bored	1 (1.21)	1 (1.20)	1 (1.23)		1 (1.12)	1 (1.29)	***
Learning something new	4 (4.02)	4 (3.98)	4 (4.09)		4 (4.25)	4 (3.85)	***
Felting guided or directed	3 (2.98)	3 (2.63)	4 (3.38)	***	3 (3.19)	3 (2.83)	***
Felting at ease and safe	3 (2.80)	1 (1.89)	4 (3.85)	***	4 (3.15)	3 (2.56)	***
Being astonished by something	4 (3.62)	4 (3.51)	4 (3.74)	***	4 (3.89)	4 (3.42)	***
Being tense or nervous	1 (1.46)	1 (1.62)	1 (1.27)	***	1 (1.37)	1 (1.53)	***
Having the sensation of being wasting your time	1 (1.14)	1 (1.14)	1 (1.13)		1 (1.06)	1 (1.19)	***
Experiencing feelings of pleasure, serenity and happiness	4 (3.47)	3 (3.43)	4 (3.53)	**	4 (3.71)	3 (3.29)	***
Having fun	4 (3.80)	4 (3.74)	4 (3.89)	***	4 (4.07)	4 (3.59)	***

Notes: ^a *p*-value is the significance of the Kruskal–Wallis test with ties.

All test results are not significant unless indicated otherwise: *** Significant at $p \leq 0.01$, ** Significant at $p \leq 0.05$, * Significant at $p \leq 0.1$

Model results

As mentioned in the econometric model section, the overall satisfaction with the visit to the museum (coded as a binary variable equal to 1 if the respondent was very satisfied, and 0 otherwise) was studied for the whole sample, and separately for the two sub-groups of Italian and foreign visitors. Logit models were estimated using White's (1980) robust variance-covariance matrix in order to correct the possible heteroskedasticity of the error terms. Table 5 reports the *Odds* obtained through the backward stepwise procedure (the cut-off value $\alpha = 0.05$).

Focusing on the result obtained for the whole sample, it can be noted that the probability of being very satisfied with the visit to Ötzi is lower for those who made the visit during weekends, probably due to the high number of visitors and the queue that normally is created outside the museum on these days. Considering nationality, it is possible to observe that the probability of being very satisfied with the visit to Ötzi seems higher for Italian visitors than for foreign visitors. Furthermore, the greater the distance between the place of residence and the city of Bolzano, the higher the probability of being very satisfied with the visit, especially for foreign visitors (as we can observe in the results obtained for the sub-group of foreign).

Table 5
Odds Ratio of the estimated Logit models

	Whole sample*	Sub-sample of	
		Italian**	Foreign***
Italian	1.578 (0.28)	–	–
Weekend	0.722 (0.12)		
Km	1.001 (<0.01)		1.001 (<0.01)
Showrooms and other services are very good	3.671 (0.63)	2.712 (0.63)	5.559 (1.44)
<i>Why have you visited the museum today?</i>			
A specific interest in such an attraction	1.418 (0.23)		
To learn something new		1.729 (0.4)	
To occupy some leisure time	1.675 (0.38)		
<i>Do you agree with the following statements?</i>			
A place that makes you think	1.792 (0.37)		2.962 (0.79)
<i>In which degree have you experienced the following feelings?</i>			
Feeling bored	0.67 (0.12)		
Having fun	1.647 (0.19)	1.940 (0.41)	1.522 (0.21)

Notes: Robust Std. Err. in brackets. "-" the variable is not included in the model.

* N=808; Wald chi2(9)=133.87; Prob > chi2 = 0; Log pseudolikelihood=-462.536; McKelvey and Zavoina's R²=0.283

** N=388; Wald chi2(3)=43.85; Prob > chi2 = 0; pseudolikelihood=-239.551; McKelvey&Zavoina's R²=0.189

*** N=420; Wald chi2(4)=83.42; Prob > chi2 = 0; pseudolikelihood=-224.216; McKelvey&Zavoina's R²=0.339

The overall satisfaction with the visit at the museum was strongly and positively related to the opinion that showrooms and other services offered during the visit are very good. This relation is true and significant both for Italian and foreign visitors. Looking at the impact exerted by motivations for visiting the museum on the level of satisfaction, a significant influence could be noted. In general, those who made the visit to occupy leisure time and/or for a specific interest in such an attraction were more likely to be more satisfied with the visit to the museum. Unlike foreigners, Italians who visited the museum to learn something new were likely to be more satisfied with the visit as a whole. For foreigners, the likelihood of being very satisfied with the visit is higher if the visitor considered the museum as a place that makes you think. In conclusion, respondents who had fun during the visit were likely to be very satisfied with it, independently from their origin, while generally those who felt bored were likely to be less satisfied.

Discussions and conclusions

Museums are important attractors for tourists and encouraging repeated visits is one of the main aims of the museum managers. Satisfaction may be one of the factors which influence repeated visits and thus museum managers must better understand the factors influencing satisfaction in order to create ad-hoc promotion and advertisements to reinforce overall satisfaction, ensuring in this way to repeated visits and positive word-of-mouth in the future. The dataset used in this study was collected from an ad-hoc survey conducted from June to December 2011 at the South Tyrol Museum of Archaeology (shortened to "Ötzi"), the most important museum in the province of Bolzano, in Northern Italy. The

main objective was to identify the factors affecting the visitors' overall satisfaction with the museum experience. Particular attention was paid to the influence of origin and feelings experienced during the visit by the respondents.

The results of this study offer evidence of the significant influence of origin, feelings and motivations on the overall satisfaction with the visit at this particular kind of archaeological museum. The main results obtained after the estimation of the Logit models are discussed hereafter.

Firstly, the probability of being very satisfied with the visit is higher for Italian visitors. In our opinion, this is because the prior knowledge and expectations of Italian visitors regarding the visit are different from those of foreign visitors, due to the different way in which this museum is promoted in the different countries. In fact, as stated by Brida, Disegna and Scuderi (2013b), the National Geographic Magazine dedicates many articles to Ötzi written in English or German, but not in Italian, contributing to promoting this museum abroad in a positive way. As a result, Italian visitors tend to create lower expectations, while foreign visitors tend to have much higher expectations, since this museum, or better Ötzi, is famous among them. This result reinforces the above-mentioned findings, (Anil, 2012; Armario, 2008; Westbrooke & Newman, 1978; Oliver, 1997) indicating that satisfaction depends on visitor's prior expectations and their fulfillment. In other words, the higher the expectation, the lower the satisfaction. In addition to this finding we observe that the overall satisfaction is influenced also by other factors, such as the origin of the visitors like Valle et al. (2006) suggested. The relation between origin and satisfaction is not so clear to us because we do not have sufficient information to state whether the visitors' overall satisfaction with the visit depends only on their prior knowledge and expectations, or also on their culture and tradition, as Huh (2002) suggested. In order to better understand the underlying reasons that led to these results, further and deeper analysis must be conducted. In particular, it would be necessary to survey visitors before and after the visit in order to analyze the effect produced by the visit on the overall satisfaction, verify if prior expectations are significantly different among countries, and if the experience could change, in some way, these expectations. In this way, it would be possible to verify if the influence of nationality is linked to prior expectations, culture/tradition, or both.

Secondly, the greater the distance between the place of residence and the place to be visited, the higher the probability of being very satisfied with the visit. This result seems to be in contradiction to the previous result. The reason for this contradiction could be that the first one is mainly connected to prior expectations created by promotions and depends on nationality, while the second result is probably more linked to personal competence, as Westbrooke and Newman (1978) suggested, motivations, as Armario (2008) suggested, and it does not depend on nationality. In fact, due to the location of this museum (very close to Austria and Switzerland), it is not always true that foreign visitors are further away than Italian visitors are (as an example, Austrian visitors are closer than Italian visitors who come from Sicily). Furthermore, foreign visitors have a higher probability of being very satisfied with the visit if they consider the museum as a place which makes you think, while Italian visitors who visit the museum mainly in order to learn something new, have a higher probability of being very satisfied with the visit. In other words, the stronger the competence and the motivation of the visitors, the greater the distance and the satisfaction obtained by the visit. In other words, depending on "the competence" and the nature of motivation of the visitors, the ones whose origin is more distant from the museum will obtain higher satisfaction.

Thirdly, both Italian and foreign visitors were more likely to be very satisfied if they had fun during the visit, stating the importance of feelings in influencing the overall satisfaction. Emotions and satisfaction have been widely studied in literature (Armario, 2008; Yüksel & Yüksel, 2007; Andreu, 2004; Madrigal, 1995) and this result demonstrates that feelings also play an important role in the creation of the overall satisfaction. Moreover, the opinion about showrooms and services is positively and significantly related to the overall satisfaction, confirming the findings of Huo and Miller (2007). Therefore, museum managers should curate with care the museum's showrooms and exhibitions as well as museum services, (such as staff friendliness, museum environment, more interactive facilities) in order to offer an optimal total experience, which is proven to reflect the overall satisfaction, especially among foreign visitors, who presented the highest value of the *Odds*.

In addition to this quantitative information, the qualitative suggestions given by the visitors, regarding the museum and the visit collected during the survey, have been analysed. The most criticized aspects to emerge were: too high entrance prices, long queues at the entrance, crowdedness of the exhibition areas, difficult visibility of the mummy, resulting from the long queues in front of the refrigeration chamber where the mummy is situated, lack of seating, too few opening hours, etc. All these problems are connected to the capacity of the 19th-century building hosting the museum, which was originally constructed as a bank and due to the ever-increasing number of tourists it has become inadequate.

All these problems are connected to the capacity of the 19th century building, hosting the museum, a building, originally constructed as a bank, which has become increasingly inadequate due to the ever-increasing number of visitors every year. In comparison to one of the most important Archaeological museums in Italy, Egyptian Museum of Turin, the Archaeological Museum of South Tyrol had two and a half times fewer visitors (577,037 versus 229,456 visitors) in 2011 and five and a half times less exhibition area. The small capacity of the building already causes discomfort among the visitors, especially in peak periods (July-August, and December). Therefore, the director of the museum as well as the local governments should take into consideration this fact for potential change of the building hosting the exhibitions. In fact, there has been a heated debate among the local governments on the possibility of moving the museum to a larger building, but due to the height of the required investment for this project, this discussion is still open. In this context, this qualitative analysis suggests that such investment could be justified, since it would bring higher satisfaction to the visitors, reducing the quantity of complaints, increasing the loyalty and improving the quality of word-of-mouth.

In addition, the museum directors could consider the visitors' suggestions for improvements such as: extension of the opening hours (possibly even on Mondays), installation of guiding directions in the museum and in the city, more discounting and promotion programs as well as children facilities and more interactive multimedia. The implementation of these suggestions would probably lead to the improvement of overall visitors' satisfaction.

Concluding, the main limitation of this study is that the econometric model performs estimates on a non-probabilistic sampling technique. Future inquiries are required in order to investigate satisfaction with the experience in other kinds of museums in order to validate the above results and test if the above results depend on the typology of the museum or if they could be generalized to all museums. In fact, it would be of interest to compare the visitors' profile and the factors affecting their level of satisfaction between this type of archaeological museum and other types of museums, as for example

art galleries or other types of heritage attractions. In this direction, further and deeper research is recommended in order to better understand this issue.

Appendix A

Independent variables	Descriptions
<i>Socio-demographic and economic characteristics</i>	
Male	1 = male; 0 = female
Married	1 = married; 0 = otherwise
Age	Age of the respondent (continuous)
Age2	Squared age of the respondent (continuous)
University	1 = education level is university degree or postgraduate; 0 = otherwise
Km	Distance between the city of residence and the city of the museum (continuous)
Italian	1 = the respondent is Italian; 0 = otherwise
<i>Occupation</i>	
Autonomous worker	1 = autonomous worker; 0 = otherwise
Employed	1 = employed (full-time or part-time); 0 = otherwise
Retired	1 = retired; 0 = otherwise
Student	1 = student; 0 = otherwise (reference category)
Other occupation	1 = unemployed/housewife/working occasional or on project/teacher/other; 0 = otherwise
<i>Household annual income</i>	
Income	Central value of each income category (see the list reported in Table 2); 0 if the respondent does not declare her income (continuous)
Missing income	1 = respondent does not declare his/her income; 0 = otherwise
<i>Features of the visit</i>	
Permanent collections	1 = the respondent visited one or more permanent collection; 0 = otherwise
Temporary showroom	1 = the respondent visited the temporary showroom; 0 = otherwise
Permanent and temporary	1 = the respondent visited both permanent and temporary showroom; 0 = otherwise
Weekend	1 = the respondent was interviewed during the weekend (from Friday to Sunday); 0 = otherwise
Number of museums	Number of museums visited in the last 12 months
Other cultural activities	1 = the respondent attended to other cultural activities in the city of the museum; 0 = otherwise
Showrooms and other services are very good	1 = Showrooms and other services used during the visit are considered very good; 0 = otherwise
Household size	Number of members of the family doing the visit of the museum with the interviewee
Children	1 = visited with children up to 12 years old; 0 = otherwise
Group	1 = the visit at the museum was made with an organized group and/or with friends/colleagues; 0 = otherwise

Appendix A continued

Independent variables	Descriptions
<i>Why have you visited the museum today?</i>	
To satisfy curiosity	1 = Yes; 0 = No
Rest/Relax	1 = Yes; 0 = No
A specific interest in such an attraction	1 = Yes; 0 = No
To accompany a friend/family member	1 = Yes; 0 = No
To learn something new	1 = Yes; 0 = No
Something which one ought to do	1 = Yes; 0 = No
Doing something worthwhile	1 = Yes; 0 = No
To occupy some leisure time	1 = Yes; 0 = No
<i>Do you agree with the following statements?</i>	
Just a tourist attraction	1 = Yes; 0 = No
Unique in the world	1 = Yes; 0 = No
A place that makes you think	1 = Yes; 0 = No
A way to describe an historical era	1 = Yes; 0 = No
A fascinating attraction	1 = Yes; 0 = No
An authentic attraction	1 = Yes; 0 = No
<i>With which degree have you experienced the following feelings?</i>	
Feeling lost or disoriented	5-point Likert scale (1 = not at all; 5 = Very much)
Feeling tired or discomfort	5-point Likert scale (1 = not at all; 5 = Very much)
Losing the notion of time	5-point Likert scale (1 = not at all; 5 = Very much)
Felting bored	5-point Likert scale (1 = not at all; 5 = Very much)
Learning something new	5-point Likert scale (1 = not at all; 5 = Very much)
Felting guided or directed	5-point Likert scale (1 = not at all; 5 = Very much)
Felting at ease and safe	5-point Likert scale (1 = not at all; 5 = Very much)
Being astonished by something	5-point Likert scale (1 = not at all; 5 = Very much)
Being tense or nervous	5-point Likert scale (1 = not at all; 5 = Very much)
Having the sensation of being wasting your time	5-point Likert scale (1 = not at all; 5 = Very much)
Experiencing feelings of pleasure, serenity and happiness	5-point Likert scale (1 = not at all; 5 = Very much)
Having fun	5-point Likert scale (1 = not at all; 5 = Very much)

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