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Segmenting visitors of cultural events: The case of Christmas Market



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ABSTRACT

Market segmentation in tourism makes use of sets of powerful analytical tools for the sake of planning and managing demand-oriented policies. This paper contributes to this strand of literature by segmenting tourists visiting a cultural event. We utilize the Bagged Clustering method, a combination of traditional partitioning and hierarchical techniques, which is proven to be more effective. An ad hoc survey was conducted in 2011 among the Italian visitors of the Christmas Market in Merano, Northern Italy. A total of 802 questionnaires were collected. In discussing the results, marketing and managerial implications are stressed for both policymakers and local organizers.

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1. Introduction

Christmas Markets (CMs) have become important yearly events for many cities in Italy, in particular of the South Tyrol region. The perception of the Advent atmosphere, as well as of markets as “authentic” events of the region (Brida, Disegna, & Osti, 2012a, 2013a), attract significant flows of visitors. Nowadays Christmas fairs are held in five cities of South Tyrol during the four weeks of Advent, from the end of November till Christmas Eve. They attract a large number of tourists coming mainly from Italy and often visiting the “circuit” of South Tyrol markets of Bolzano, Merano, Bressanone, Brunico, and Vipiteno. The extension of the opening season for the majority of hotels testifies to the importance of this event for the local economy, confirming that “events may be of especial interest in terms of reducing seasonality” (Nicholson & Pearce, 2000).

Understanding desires, perceptions, characteristics, and needs of visitors in a place where CM has such a deep impact can be crucial for local policymakers in order to address their actions and shape their policies according to the characteristics of the demand. For a long time visitors to cultural attractions and events have been treated as homogeneous mass of people. Instead, recent tourist literature tends to consider them as heterogeneous market with different characteristics, perceptions, and needs (Hughes, 2002). Consistently with this view, the goal of this study is to perform a segmentation analysis of CM visitors. The Bagged Clustering (BC)

technique (Leisch, 1999), a segmentation method that is not common in the marketing and tourism field, was adopted in this study. In particular, two objectives are pursued. First, the paper aims at finding homogeneous groups of visitors according to their reasons for visiting the CM. Then clusters of tourists with similar levels of travel expenditure are analysed. The BC algorithm combines sequentially partitioning and hierarchical clustering methods presenting several advantages compared to classic unsupervised techniques. In particular, this method allows obtaining more robust and stable segment solution than other classic methods thanks to the adoption of the bagging (“bootstrap aggregating”) procedure (Breiman, 1996). The adopted methodology presents several advantages with respect to classical techniques, such as the improved stability of results, a reduced dependency on the starting solution, and the possibility of using large datasets. This implies that managerial implications can be drawn based on more robust empirical evidence. BC has been successfully applied by its author or his research team, for the sake of tourism market segmentation (Dolnicar & Leisch, 2000, 2003; Dolnicar et al., 2008), but it has been applied infrequently by other scholars in tourism. In particular, to the best knowledge of the authors this work is the first attempt to use BC in a cultural event analysis. Data were collected from an ad hoc survey conducted in 2011 during the four weeks of Advent (from 30 November to 24 December) among the Italian visitors of the CM of Merano, Northern Italy.

The paper is organized as follows. In Section 2, a literature review on the applied segmentation studies is provided. In particular, some key studies of segmentation in tourism and cultural events are reviewed. In Section 3 an insight on the methodology is given, focusing on both the questionnaire design and the BC method employed to run the empirical investigation. In Section 4, results emerging from the cluster analysis are reported. Conclusions,

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limitations of the study, and practical implications are summarized in the last section.

2. Literature review and background

2.1. Market segmentation in tourism

Market segmentation is a simple concept that has been considered widely as a key instrument in the field of strategic marketing (Kruger, Saayman, & Ellis, 2011; Najmi, Sharbatoghlie, & Jafarih, 2010). It consists of subdividing a market into smaller and homogeneous groups. It assumes that markets and the involved individuals are not homogeneous and therefore, no single supply will satisfy everyone (see among others Kruger et al., 2011; Najmi et al., 2010; Tkaczynski & Rudle-Thiele, 2011; Kotler & Armstrong, 1999). In general, this allows the marketers to do direct efforts towards the groups of customers that are resulting more economically significant (Thompson & Schofield, 2009). Tourism is a natural extension of the market segmentation analysis. According to Lee and Beeler (2009) and Koc and Altinay (2007), developing and sustaining competitive advantage in competitive tourism markets largely depends upon on how well visitors are known. Kau and Lim (2005) stress that market segmentation allow to destination planners “to allocate resources more effectively in attracting distinct and unique groups of travellers”.

Since the introduction of market segmentation in the late 1950s, the number and type of approaches has grown enormously (Dolnicar & Leisch, 2004; Liao, Chu, & Hsiao, 2012). This has happened also in the tourism literature. For an extensive review of recent academic literature about market segmentation in tourism see Cohen, Prayag, and Moital (2013) and Pesonen (2013). The two major approaches for segmenting individuals are *a priori* and *a posteriori*. The first approach consists in identifying the groups using a predefined criterion that is expected to cause heterogeneity among the customers. In the second approach, groups are recognized by applying quantitative method of data analysis. Among *a posteriori* segmentation approaches, cluster analysis remains the most popular method and the most frequently used in the literature (Dolnicar, 2002; Jain, 2010; Wedel & Kamakura, 2000). Clustering methods are generally divided into three categories: non-overlapping algorithms (each object is part of a single segment – Tuma, Decker, & Scholz, 2011); overlapping algorithms (an object may belong to more than one cluster – (Wedel & Kamakura, 2000); fuzzy algorithms (each object is assigned by a degree of membership to a segment – Franke, Reisinger, & Hoppe, 2009; Tuma et al., 2011). Hierarchical (agglomerative) and non-hierarchical (partitioning) methods are two common approaches that can be classified within non-overlapping algorithms. They have been used in the marketing and tourism literature very frequently (Dolnicar, 2002, 2003; Dolnicar & Leisch, 2004; Tuma et al., 2011).

Hierarchical methods aim to find clusters by iteratively joining the “closest” clusters composed of one or more observations (agglomerative clustering), or splitting the “furthest” clusters (divisive clustering). Standard partitioning methods group the observations around a centre in order to find a segmentation of the set of units in a fixed number of clusters, decided *a priori*. In marketing and tourism studies, the most commonly used algorithm in this category is the *k*-means (Dolnicar, 2002; Tuma et al., 2011). In general, partitioning methods are more flexible and perform better with large dataset than hierarchical methods (Brida, Disegna, & Scuderi, 2013b; Dolnicar, 2002; Dolnicar & Leisch, 2004; Everitt, Landau, Leese, & Stahl, 2011). The latter have the disadvantage that once observations are merged with others in a group, they cannot be removed from that cluster. Therefore, application of hierarchical methods is not always justified in market segmentation given that it presupposes an underlying hierar-

chy among the objects or respondents to be clustered (Tuma et al., 2011).

K-means instead strongly depends on the starting selected centres because it is based on iterative stochastic procedures. Running *k*-means algorithm twice on the same dataset with different starting centres may result in two different solutions: the less clear the hidden data structure, the higher the difference between two solutions. This causes *k*-means to be an unstable algorithm though widely used. The reason is related to the absence of a global solution and to the fact that at each iteration one may only find a local one. Another important disadvantage that occur when using *k*-means is that the number of clusters has to be selected in advance. In tourism studies using non-hierarchical algorithms, it is a common practice to decide the number of groups on the basis of practical and subjective preference (Albalade & Bel, 2010; Choi, 2011; Konu, Laukkanen, & Komppula, 2011; Pérez & Nadal, 2005) or derive this information from applying a hierarchical cluster method (Bigné & Andreu, 2004; Chen & Hsu, 1999; Claver-Cortés, Molina-Azorín, & Pereira-Moliner, 2007; Punj & Steward, 1983). Although many internal validity indices were developed in order to drive the researcher to select this number properly (see for example Handl, Knowles, & Kell, 2005), none has yet been globally accepted and in the tourism field they have not been widely applied (see Brida, Disegna, & Osti, 2012b for an example of their application).

Operationally, researchers can choose among a great number of clustering methods and each of them may conduct to a peculiar description of the data. This implies that “different methods present different views of data” (Leisch, 2006). Unfortunately, as emphasized by many researchers, no absolutely “correct” or commonly shared way to segment a market exists in the literature (Beane & Ennis, 1987; Brida et al., 2012b; Dolnicar et al., 2008; Kotler, Bowen, & Makens, 2010; Tkaczynski & Rudle-Thiele, 2011).

Recently, Leisch (1999) proposed the use of the BC, a method that combines sequentially partitioning and hierarchical clustering methods. It can be seen as both a complexity-reducing pre-processing stage for the hierarchical methods, and a procedure combining several results from partitioning (Kang, Hua-Xiang, & Ying, 2008; Leisch, 1999). It performs better in comparison to other standard clustering methods for both continuous and binary data sets, and it overcomes many limitations of either partitioning and hierarchical algorithms (Leisch, 1999). In particular, the main advantage of this algorithm, with respect to a partitioning one, is that it is not necessary to impose the number of clusters *a priori*. In addition, Dolnicar and Leisch (2004) showed that BC could provide more stable results than other classic methods. In fact, the bagging (“bootstrap aggregating”) procedure (Breiman, 1996) adopted in the BC algorithm is a resampling method that aims to improve the accuracy of results from unstable procedures.

2.2. Segmentation of visitors to cultural events

In this study we focus on the segmentation analysis of events, which has been the object of many studies. The comprehensive review of Tkaczynski and Rudle-Thiele (2011) reports that many different kinds of techniques have been applied. Papers making use of cluster analysis have been in a limited number, but the type of events under investigation is wide. These works have in common the goal of investigating the extent to which each segment is attracted by the cultural event or local tourist attractions, or rather specific motivations or socioeconomic characteristics are proper of it. For instance, different levels of cultural orientation (i.e., low, medium, high) are reported by Lee and Lee (2001), who classify visitors according to their motivations to attend a cultural festival. Prentice and Andersen (2003) find seven clusters of visitors to Edinburgh festival according to consumption styles: serious consumers of international culture, British drama-going socializers,

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