



Event sustainability and transportation policy: A model-based cluster analysis for a cross-comparison of hallmark events



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ABSTRACT

Transportation is one of the main topics in the wide-ranging theme of event sustainability. The aim of this article is to make a contribution towards the evaluation of the sustainable transportation policies implemented by the organizers of hallmark events, to establish an accurate and objective methodology for a cross-comparison. The organizers, policy makers and the host community are the main stakeholders interested in an evaluation of the degree of sustainability implicit in the mobility policy of an event. A non-hierarchical model-based clustering is performed, using a sample of periodical Italian hallmark events, and then examined to determine whether there is a difference in the distribution of a selection of auxiliary variables among the clusters. The results show that neither visitor number, nor the number of inhabitants in the host city, is associated with the cluster membership. However, the theme of the event appears to be associated with the estimated partition.

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1. Introduction

In recent years, special events and festivals have increasingly come to be seen as an instrument for local development. This is thanks to their impact on the local economy, as well as their intangible benefits, such as a boost to the image and the reputation of the host city, a sense of pride in the local community, and improved social cohesion (Arnegger & Herz, 2016; Boo & Busser, 2005; Burgan & Mules, 2001; Tyrrel & Ismail, 2005).

Aside from these positive aspects, however, special events can also generate negative consequences (Fredline & Faulkner, 2000; Kim, Jun, Walker, & Drane, 2015). Some of these, such as the degree to which local residents are inconvenienced for the duration of the event, are to a large extent unquantifiable. Others can be quantified, albeit with difficulty, such as the additional explicit and implicit costs incurred for local government, and therefore the community as a whole (Andersson & Lundberg, 2013; Chirieleison & Montrone, 2013). The awareness of these negative social and environmental impacts has led to an increase in the attention paid to the issue of event sustainability (Arcodia, Cohen, & Dickson, 2012; Dredge & Whitford, 2010; Getz, 2009; Hall, 2012).

While the theme of sustainability in tourism studies has been present in the literature for a number of years, it has only recently emerged

in event studies, and is still at an early stage (Buckley, 2012; Clarke, 1997; Franzoni, 2015; Hunter, 1997; Kay Xin, Chan, Vogt, & Mohamed, 2016; Lim, 2016). However, the extent of research in this field is rapidly growing, in parallel with the interest of practitioners and policy makers (Getz, 2009; Hall, 2011; Musgrave, 2011).

Sustainable events are designed with the aim of balancing three aspects: the economic, socio-cultural and environmental dimensions (Smith-Cristensen, 2009). In order to generate an appreciable legacy, event organizers and policy makers should adopt a holistic approach to leave a positive net output for the local host community. The aim is to maximize economic impacts, while optimizing socio-cultural effects and minimizing environmental impacts.

Among the numerous event sustainability issues (accountability and transparency, engagement of the community, respect for the environment, visitor safety, waste recycling, etc.), the present study focuses on transportation and visitor mobility. Transportation significantly affects all three dimensions of sustainability (Dolf & Teehan, 2015; Høyer, 2000; Laing & Frost, 2010; Latoski, Dunn, Wagenblast, Randall, & Walker, 2003; Litman, 1999). Firstly, the economic impact for the organizers and the public administration, due to the necessity to provide an alternative mode of transport to private cars. Secondly, the social impact on local inhabitants, due to traffic congestion and displacement of residents in the use of public transportation. Thirdly, the environmental impact due to polluting emissions and a deterioration of air quality (Low, Gleeson, & Whitman, 2002; Zheng, Atkinson-Palombo, McCahill, O'Hara, & Garrick, 2011; Zheng, Garrick, Atkinson-Palombo, McCahill,

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& Marshall, 2013). As a consequence, choices in terms of visitor mobility can decisively influence the overall level of sustainability of an event (Robbins, Dickinson, & Calver, 2007).

The main purpose of this study is to make a contribution towards a comparative evaluation of management and communication policies on sustainable transportation, as carried out by event organizers. Many of the factors influencing visitors' choice of mode of transportation are exogenous with respect to the event organizers, such as existing infrastructure or individual preferences (Masiero & Zoltan, 2013; Schneider, 2013). Other factors, however, can be influenced by opportune policies, especially if designed in cooperation with local policy makers and other relevant stakeholders. Nevertheless, undertaking a proper and objective evaluation of such policies is not easy, in particular from the perspective of a comparison between different events. As a result, also due to undeniable methodological difficulties, this issue has yet to be adequately addressed in the literature.

Moreover, it is worth noting that even excellent mobility policies, if not adequately communicated to the audience of an event, risk resulting in failure. Therefore, communication plays a key role and should also be considered. The event web site is undoubtedly one of the most important forms of media used to inform actual and potential visitors about mobility issues. It can play an important role in encouraging the choice of sustainable transportation modes, in particular for hallmark events (Hoyle, 2002; Shanka & Taylor, 2004; Smith, 2007, 2008; Zarei & Yusof, 2014). The audience for such events often arrives from outside the region, and is therefore not familiar with local transport. Various studies have taken into account online event communication (Devine, Bolan, & Devine, 2009; Filo, Funk, & Hornby, 2009; Smith, 2008), but none of these specifically focus on sustainable transport issues.

Our research specifically focuses on hallmark events (Getz, Svensson, & Gunnervall, 2012; Hall, 1989, 1992; Ritchie, 1984; Ritchie & Beliveau, 1974). While transportation issues can theoretically arise with relation to all special events, the size of the event is a key factor to be taken into account. In general, small events involve the movement of a small number of people, who often come from the local catchment area, and thus do not have a massive effect in terms of transportation sustainability. On the contrary, mega-events (the Olympic Games, World Fair, mega sporting events, etc.), which move huge masses of people from all over the world, can result in enormous sustainable transportation challenges. However, in recent years organizers and policy makers are becoming progressively more aware of the issue. They have increasingly become committed to developing specific sustainable transportation management policies in the case of mega-events, with the explicit aim of reducing negative impacts (Currie, Jones, & Woolley, 2015; Hall, 2011; Hall & Hodges, 1996; Li, Lv, & Yan, 2012). Indeed, hallmark events risk being stuck in the middle. While the movement of hundreds of thousands of people can lead to significant mobility and transportation problems, this events often lack dedicated transportation policies. Moreover, such events are sometimes organized by non-professional subjects (namely NGOs) that lack the competences to address the issue with adequate attention. As these events are often periodical, thanks to their repetitive nature, they are an ideal field in which to develop and improve best practices in sustainable mobility. As a result, such events can be a very interesting subject of study.

In this framework, we propose the use of cluster analysis, a widely used methodology in event studies (Chen, 2011; Fredline & Faulkner, 2000, 2001; Pérez & Nadal, 2005), to evaluate the sustainable transportation policies of hallmark events, as communicated through their websites. The aim is to establish an accurate and objective methodology for cross-comparison. Thus, a model-based clustering approach is applied to a sample of the most visited events in Italy. Clusters are ordered according to their sustainability. Then a descriptive analysis of auxiliary variables is performed to investigate the presence of any significant association with the estimated partition, particularly with the group of most sustainable events.

The paper is organized as follows. Next section features a brief summary of the literature, focusing firstly on event sustainability issues, and secondly on the linkage between transportation and events sustainability. The third section, following the identification of key issues related to transportation sustainability, proposes a method for a cross-comparison between events, in terms of sustainable transport policies. The fourth section applies the methodology to a sample of twenty periodical hallmark events in Italy and discusses the results. Finally, conclusions are drawn in the closing section, which highlight the policy implications, the limits of the analysis, and indications for further research.

2. Literature review

2.1. From the positive impact of events to events sustainability issues

Special events and festivals have increasingly been studied in literature, giving rise to a huge number of theoretical and empirical studies, also due to the awareness that they confer significant positive impacts to the hosting region (Getz, 2008; Getz, Andersson, & Carlsen, 2010; Getz & Page, 2014; Wilson & Arshed, 2016). From an economic point of view, they can be seen as a powerful tool for attracting tourists and deseasonalizing arrivals (Chirieleison, Montrone, & Scrucca, 2013; Connell, Page, & Meyer, 2015; Felsenstein & Fleischer, 2003; Ritchie & Beliveau, 1974). They also generate a significant direct and indirect impact in the territory (Bracalente et al., 2011; Dwyer, Forsyth, & Spurr, 2006a, 2006b; Dwyer, Mellor, Mistilis, & Mules, 2000b; Lee, 2007; Lee & Taylor, 2005; Tyrrel & Ismail, 2005). From a social point of view, some special events are the visible evidence of the immaterial heritage of a community. They act as a celebration that reinforces traditions, civic pride and cohesion, with a positive impact on shared intangible values (De Bres & Davis, 2001; Derrett, 2003; Dwyer, Mellor, Mistilis, & Mules, 2000a; Kim et al., 2015; Richards, 2007).

However, thanks to the wide spread of the Triple Bottom Line approach (Elkington, 1997), the literature and practitioners are becoming increasingly interested in event sustainability. Event sustainability implies that the organization of events should contribute to sustainable development (Hall, 2012; O'Sullivan & Jackson, 2002; Smith-Cristensen, 2009). Sustainable events need to incorporate economic, socio-cultural and environmental objectives. Thus, sustainable event management systems should put effort into strategies for optimizing positive impacts and minimizing negative social and environmental impacts (Hall, 2012; Heitmann & Dávid, 2010; Jones, 2014; Raj & Musgrave, 2009; Stettler, 2011; Whitson & Horne, 2006; Yuan, 2013).

With respect to negative social impact, various recent studies in the literature have highlighted the critical aspects caused by special events, and major events in particular, for the hosting community (Chen, 2011; Hall & Hodges, 1996; Taks, 2013; Waitt, 2003; Whitson & Horne, 2006). The relevance of this issue is attested to by the numerous attempts made in the literature to evaluate this social impact, in both qualitative and quantitative terms (Andersson & Lundberg, 2013; Delamere, 1997; Fredline, Raybould, Jago, & Deery, 2005; Kim et al., 2015; Rollins & Delamere, 2007; Small, 2007; Waitt, 2003). Among the main disadvantages that can be cited at a local level are traffic congestion, pressure on services and infrastructure, with a consequent decrease in use by residents, and a reduced quality of life for local people during the days when the event takes place (Hall & Hodges, 1996; Small, Edwards, & Sheridan, 2005). Moreover, the organization of an event can also generate direct costs for the community. On one hand, events – and cultural events in particular – often benefit directly from local public funding, raising opportunity cost questions (Felsenstein & Fleischer, 2003; Mules & Dwyer, 2005; Whitson & Horne, 2006). On the other, some costs related to event organization are typically indirectly supported by the Municipality, in order to guarantee that the event runs smoothly. These costs may include police overtime, refuse collection and cleaning costs, assistance and aid (Chirieleison & Montrone, 2013). Finally, undesirable socio-cultural impacts can emerge, as in the case where the

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