

The social impact of participative sporting events: A cluster analysis of marathon participants based on perceived benefits

Journal:	<i>Sport in Society</i>
Manuscript ID	FCSS-2019-0040.R1
Manuscript Type:	Original Article
Keywords:	social impact, city image, sport participation, psychosocial benefits, marathon

SCHOLARONE™
Manuscripts

The social impact of participative sporting events: A cluster analysis of marathon participants based on perceived benefits

Christopher Hautbois^{1*}, Mathieu Djaballah* and Michel Desbordes*

*1 - CIAMS, Univ. Paris-Sud, Université Paris-Saclay, 91405 Orsay Cedex, France

2 - CIAMS, Université d'Orléans, 45067, Orléans, France

Abstract

Since many years, hosting mega-events is known to have potential positive effects on local communities. In the recent years, there has been a growing interest for non-strictly economic impacts, among which well-being, quality of life, sense of belonging, civic pride (Crompton 2004, Balduck, Maes, and Buelens 2011, Kim and Walker 2012) as well as destination image (Alonso-Dos-Santos, Calabuig, Montoro, Valantine, and Emeljanovas 2014, Armenakyan, Heslop, Nadeau, O'Reilly, and Lu 2012, Berkowitz, Gjermano, Gomez, and Schafer 2007). Most of the studies have investigated these effects through spectator events. Researches regarding participative events are much less developed. Hence, this article seeks to delve into this area, more particularly by wondering what impacts participative events can have on the participants themselves. Based on a literature review that identifies three main areas of impacts (i.e. city image, sport participation, and psychosocial benefits), a questionnaire was built and submitted to the participants of the Unicef Geneve Marathon (N=1305). A statistical segmentation (cluster analysis) procedure was performed, which allowed for the identification of three distinct groups of participants based on a combination of eight factors. Each of these groups are described, thereby confirming the existence of a variety of effects related to participative sporting events that are then discussed both from theoretical and managerial perspectives.

Key words: social impact, city image, sport participation, psychosocial benefits, marathon

¹ Corresponding author

The social impact of participative sporting events: A cluster analysis of marathon participants based on perceived benefits

Introduction

Since scholars began to examine the role of sports in society, one of the most prolific debates has been about the spillover effects of major sporting events. Over the last 50 years, most studies have been focused on economic impacts of mega sporting events hosted by large cities (Crompton 1995, Crompton, Lee, and Shuster 2001). However, now that there seems to be a consensus that these impacts are limited (Burns, Hatch, and Mules 1986, Crompton 1995, Zimbalist 2010), social impacts are under growing scrutiny (Gibson, Walker, Thapa, Geldenhuys, and Coetzee 2014, Inoue and Havard 2014, Kaplanidou Karadakis, Gibson, Thapa, Walker, Geldhuys, and Coetzee 2013). Taks, Chalip, and Green (2015, p.2) defined social impacts as impacts “from a non-monetary perspective such as social life, urban regeneration, sport participation, environmental stewardship or infrastructure”. With some exceptions (i.e. Taks 2013, Djaballah, Hautbois, and Desbordes 2015), here again these studies have investigated social impacts through mega sporting events (Jones 2001, Kim and Petrick 2005, Kim and Walker 2012, Waitt 2003). Beyond the worldwide exposure of these events, this orientation was justified by the important amount of public money spent on their staging, putting event organizers and public authorities under pressure to demonstrate that the benefits exceeds the cost. As a result, in the two last decades, there has been numerous research works addressing a variety of outcomes (Brown and Massey 2001, Coalter and Taylor 2008, Cornelissen, Bob and Swart 2011, Taks, Littlejohn, Snelgrove, Wood 2016) of mega spectator sporting events like the Olympic Games or the FIFA World cup.

The original purpose of this article is to pay attention to the effects of participative sporting events, as this kind of events has scarcely been explored yet. Indeed, what can be the social impacts of participative events like marathons? How are these impacts perceived by the

1
2
3 participants? These are the research questions of this paper. These questions, which are of an
4
5 exploratory nature, require an analysis of social effects that have often been studied separately,
6
7 and mostly in spectator events contexts. Hence, this study provides an integration of three
8
9 bodies of sporting events' impacts literature, namely territorial image, sport participation and
10
11 psychosocial benefits, with the ambition of developing a conceptual tool that could enable
12
13 researchers as well as event managers to better understand participants and ultimately improve
14
15 decision-making processes when hosting large participative events.
16
17

18
19 The paper is structured as follows. First, a literature review of sporting events impacts in terms
20
21 of territorial image, sport participation, and psychosocial benefits is provided, preceded by a
22
23 focus on social exchange theory. Then, we describe the method, i.e. the building of a
24
25 questionnaire that was submitted to the participants of the Unicef Geneve Marathon (N=1305),
26
27 as well as the statistical segmentation procedure (clustering analysis) that was performed in
28
29 order to identify (1) social benefits factors and (2) clusters (groups) of participants based on a
30
31 combination of these factors. Finally, we present our findings, i.e. the three clusters identified
32
33 and discuss their theoretical and managerial implications.
34
35
36
37

38 39 ***Literature review***

40 41 *Social exchange theory*

42
43
44 Different theoretical frameworks have been proposed to understand the resident perceptions
45
46 (Andereck, Valentine, Knopf, and Vogt 2005), attitudes (Gursoy and Rutherford 2004) or
47
48 reactions (Deccio, and Baloglu 2002) towards the staging of mega events. The three main ones
49
50 are community attachment theory (Onyx and Bullen 2000), social identity theory (Heere,
51
52 Walker, Gibson, Thapa, Geldenhuys, and Coetzee 2013) and social exchange theory. Among
53
54 these, social exchange theory is appropriate to study both local and non-local individuals since
55
56 it does not include the dimension of attachment to one's community or its identity. Social
57
58
59
60

1
2
3 exchange theory has indeed been used to understand both host and non-host residents'
4 perceptions of social impacts (Karadakis and Kaplanidou 2012). Ap (1992, p. 668) described
5 social exchange theory as “a general sociological theory concerned with understanding the
6 exchange of resources between individuals and groups in an interaction situation”. According
7 to this theory, an individual or a group is gleeful to be involved in an exchange with another
8 party if the individual or group estimates that there will be some benefits from the exchange
9 (Gursoy and Kendall 2006). This definition lends itself well with sporting events participants,
10 since their choice whether to participate depends on a comparison between the perceived costs
11 and benefits of the event, what is a key element of social exchange theory. Hence, in the same
12 way as residents of spectator events, sporting events participants have a set of perceptions
13 regarding what benefits the event can bring to them – knowing that if the perceived costs
14 appeared to be more important, they would chose not to participate. On this basis, benefits
15 related to participative events can be identified in three main bodies of sporting events literature,
16 i.e. sport participation benefits (as it is the very principle of participative events), psychosocial
17 benefits (since this kind of effects has been fairly studied in sporting events in general), and
18 benefits associated with the place (city image) in which the event is staged, in the sense that
19 events like marathons constitute a form of sport tourism (meaning that the decision to
20 participate can also be based on the desire to visit a given region). In the following section, a
21 brief literature review of these three research areas is provided in order to pinpoint the different
22 benefits.
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48

49 *Sport participation*

50
51 Among the benefits of sporting events, their ability to increase sport participation by
52 encouraging the “population to become more physically active” (Frawley and Cush 2011, 65)
53 has largely been pointed out although it is not clearly evidenced. Most studies, done in the
54 context of mega spectator events, conclude that no, little, or only short-time effects occur
55
56
57
58
59
60

1
2
3 (Weed, Coren, and Fiore 2009). For example, Taks et al. (2018) conducted an action research
4 in the context of the International Children's Games. They focused on two sports which were
5 included in the process and found little influence of sporting events on sport participation:
6 several barriers (distrust among local clubs, insufficient human and physical resources) still
7 exist which limit sport participation. The case of participative events is obviously different in
8 that they induce a direct participation. Still, as physical activity on a regular basis has become
9 a matter of public policy (due to its potential effects in terms of health), participative events
10 may be better able than spectator events to act as a trigger of sport participation (since finishing
11 a marathon can represent a form of achievement that rewards a demanding physical training)
12 as well as a factor of maintaining physical activity following the event (in order these efforts
13 not to be wasted).

27 28 29 *Psychosocial benefits*

30
31 Studies exploring the psychosocial impacts of sporting events have grown in numbers in the
32 last decades, although using various terminologies. Generally, psychosocial impacts pertain to
33 a broader set of "intangible impacts", as opposed to "tangible impacts" (Preuss and Solberg
34 2006) which notably include economic spinoffs as well as the building of sport facilities or
35 infrastructures. Within this first subdivision, it is then possible to identify a variety of
36 constructs, e.g. feel-good effect (Maennig 2008), well-being (Kavestos and Szymanski 2010,
37 or happiness (Taks et al. 2016). Among those, the notion of "psychic income" has notably been
38 used to describe individual's psychosocial benefits. Originally, this term appeared in the field
39 of human resource management to measure intrinsic rewards included in a given job. Later,
40 Gibson (1998) took the notion under consideration while examining the effect of major sport
41 events. Crompton (2004, 181), still in the context of spectator events, defined psychic income
42 as "the emotional and psychological benefit residents perceive they receive, even though they
43 do not physically attend sports events and are not involved in organizing them". Kim and
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 Walker (2012) also used psychic income to measure the social impacts of the Superbowl. Like
4 the previous constructs, psychic income contains dimensions that are only suitable for residents
5 of major spectator events, i.e. perceptions relating to tourism development, community pride,
6 or community excitement. However, two main dimensions developed by Crompton (2004) can
7 be adapted to the case of participative events, namely self-esteem and social bonding.
8
9

10 Rosenberg (1965) defines self-esteem as the attitude (negative or positive) of an individual to
11 oneself, resulting from self-evaluation. While the notion of self-esteem in studies using the
12 psychic income framework is collective (meaning the self-esteem of the whole community
13 hosting the event), a large amount of research has explored individual self-esteem in sports,
14 notably pointing that sport activities can reinforce it (Richman and Shaffer 2000, Slutzky and
15 Simpkins 2009). From this perspective, and since participative sporting events can be viewed
16 by some participants as an opportunity to push their limits by competing against the others or
17 against themselves, their benefits in terms of self-esteem can be postulated.
18
19

20 Social bonding has been defined by Hirschi (1969) in order to measure the extent to which an
21 actor is "bonded" to society – meaning that his behavior does not deviate from societal norms
22 – and was originally used to predict delinquency. In their further developments, research works
23 enlarged the definition of social bonding to notions such as social capital and community
24 consciousness (Putnam 1995, Gittell and Vidal 1998). This larger approach has been applied to
25 sports and more particularly sporting events on the basis that they are able to tie people together,
26 regardless of race, gender or economic standing (Crompton 2004). Therefore, social bonding is
27 a form of psychosocial benefit which is not centered on the individual, but on his relationships
28 with others. It illustrates the need to establish social ties that generate a security, care, and
29 affection (Sousa 2010), which is the reason why individuals form groups and communities. It
30 is thus possible to postulate that participative sporting events generate or reinforce social
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 bonding, whether among participants, groups of participants, or even between non-local
4 participants and residents of the local community.
5
6

7 8 *Territorial image* 9

10 Kavaratzis and Ashworth (2005) transformed the concept of 'place marketing' to 'place
11 branding' to better explain the case of cities. They consider an approach where city brands are
12 treated as expensive assets and managed in a distinctive way in competitive contexts. "*Most*
13 *academics accept the idea that place branding can be associated with regular product branding*
14 *but in considering the specificities of territories*" (Anttiroiko 2014, 22). City/destination image
15 became a key concept over the last 15 years. In parallel, a growing number of research works
16 examined the relationship between destination image and intention to visit in the context of
17 major sporting events (Chalip, Green, and Hill 2003, Choong-Ki, Taylor, Yong-Ki, and
18 Bongkoo 2005, Ryan 2008). In the same way as for previous dimensions, so far most studies
19 explored destination image related to spectator events. Very little has been done about the
20 effects of participative events on city image. When they exist, studies are focused on running
21 races (Hallman, Kaplanidou, and Breuer 2010, Higham 2005, Richard and Jones 2008). Huang,
22 Mao, Wang and Zhang (2015) showed that both affective image congruence and cognitive
23 image congruence have a positive influence on tourist satisfaction. Funk, Toohey, and Bruun
24 (2007) demonstrated that aesthetic dimensions of the venue are the principal determinant of
25 loyalty for active sports tourists while the principal determinants of the intent to return were the
26 venue and the technical quality. These studies indicate that the territory in which the event takes
27 place is a full-blown element of participants' experience. Its tourism infrastructures, cultural
28 patrimony, gastronomy, or night life can therefore be perceived as benefits and influence
29 participants' choice of an event over another.
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55

56 Overall, participative sporting events seem to be able to generate a variety of benefits, which
57 are of a different nature from widely studied spectator events' social outcomes. This paper aims
58
59
60

1
2
3 to begin filling this research gap by seeking evidence of these benefits among sport participants.
4
5 To do so, the research proposition consists in segmenting participants basing on their perceived
6
7 benefits. Segmentation is a marketing tool used to divide a broad consumer market into sub-
8
9 groups of consumers based on common characteristics such as shared needs or similar
10
11 demographic profiles (Fahy and Jobber 2012). Its aim is to better understand customers in order
12
13 to adapt the marketing offer. In the present case, segmentation will serve to identify
14
15 participant's profiles in terms of perceived benefits, in order to provide insights into their event
16
17 experience. This could allow for a deeper understanding of (1) what the social impacts of
18
19 participative events are and (2) what the different sub-groups of participants are in search of.
20
21
22
23
24
25

26 ***Methods***

27 *Research context and measures*

28
29 Geneva Marathon has been created in 2005 (1840 finishers from 113 countries in 2017). This
30
31 marathon is one of the fastest in Europe and one of the most picturesque city marathons. A
32
33 questionnaire was developed that comprised four sections: (a) sport participation (b)
34
35 psychosocial benefits (c) city image and (d) demographics. The sport participation section
36
37 included 10 items about the sporting objectives both in general and related to the event, the role
38
39 of the event in increasing running or physical activity in the preceding months, the benefits of
40
41 the event in terms of perceived health and the motivation gave by the event to maintain running
42
43 of physical activity afterwards. The psychosocial benefits section comprised 11 items guided
44
45 by the literature (Crompton 2004, Kim and Walker 2012) including questions about the role of
46
47 the event in improving self-esteem dimensions as well as questions related to social bonding
48
49 which were oriented whether towards participants friends, other runners or more generally
50
51 towards the local community. For the destination image section, 19 items were adapted from
52
53 Hallmann and Breuer (2010a, 2010b) and Hallmann, Kaplanidou, and Breuer (2010), including
54
55
56
57
58
59
60

1
2
3 questions for the affective component and questions for the cognitive component. Items were
4
5 measured on a five point likert scale (ranging from 1- totally disagree to 5- totally agree, except
6
7 for affective image items, which ranged from, for example, 1- gloomy to 5- cheerful).
8
9

10 Additionally, for sample description and segmentation purposes, the demographics section
11
12 included six variables: gender, age, annual household income, education level, place of
13
14 residence and runner profile.
15

16 17 *Data collection and analysis*

18
19 Participants of the marathon were asked to fill an online questionnaire designed by the
20
21 authors and sent by the organizers. 2037 questionnaires were sent, 1721 were collected and
22
23 1305 were usable. A majority of the respondents were male (69.8%). 63% were from 31 to 50
24
25 years old, with fewer respondents under (15%) or over (21.9%) this age range. Notable
26
27 sociodemographic features of the sample included educational level – with 71.5% of the
28
29 respondents having a higher education degree – as well as income, since 38.8% indicated an
30
31 annual income of more than 99 999 CHF (which can be explained by the fact that Switzerland
32
33 has one of the highest average salary in Europe). 52.5% of the respondents were from
34
35 Switzerland, 38.2% from the rest of Europe and 4.9% from non-European countries. 57%
36
37 described themselves as regular runners, while 15.3% were running their first marathon. Prior
38
39 to engaging in the core of the analysis (the segmentation process), a principle component
40
41 analysis (PCA) was first conducted on the benefits items to identify latent factor structures and
42
43 reduce items. Then, the segmentation was performed through a cluster analysis in order to
44
45 identify subsamples of individuals with common perceptions regarding the different
46
47 dimensions of benefits. Cluster analysis is appropriate for segmentation because it comprises a
48
49 set of multivariate statistical techniques with the aim of identifying and classifying individuals
50
51 into groups based on similarities, and has been vastly used in marketing (see Sarstedt and Mooi
52
53 2014) and social sciences including studies related to sport practices or consumptions
54
55
56
57
58
59
60

(Downward and Riordan 2007, Ross 2007, Rundle-Thiele, Kubacki, Tkaczynski, and Parkinson 2015). There are different types of cluster analyses. In this paper, given the large size of the sample and the variety of scales (continuous, ordinal and nominal) used to measure the variables, two-step cluster was employed, because it allows for both categorical and continuous data to be analyzed simultaneously (Norusis 2011). Following the procedures outlined by Norusis (2011), two-step cluster analysis in SPSS 19.0 based on the log-likelihood measure was used to reveal natural groupings in the data set. Two-step cluster analysis was considered the most appropriate technique for this study as it does not necessarily need the researcher to select a predetermined number of clusters. Considering the exploratory nature of this study, this would have seemed arbitrary to expect a given number of clusters before performing the analysis. Thus, two-step cluster analysis involves two stages. In the first step, the software identifies the number of preclusters that best fit the data by constructing a cluster features tree. In the second step, cluster allocations are refined through the standard hierarchical clustering algorithm (Norusis 2011). Following this procedures, the researcher still has the possibility to add or remove variables in order to explore a range of solutions. The best solution will be defined by the Schwarz's Bayesian information criterion (BIC), which is considered one of the most objective selection criteria (Chiu et al. 2001). The BIC ranges from -1 to 1, and needs to be above 0.0 to indicate that the within-cluster distance and the between-cluster distance are valid (Norusis 2011).

Results

Principle component analysis

A PCA with varimax rotation was conducted on the above-mentioned 40 items. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy value was .898 and Bartlett's Test of Sphericity (BTS) was significant ($p < .001$), indicating that the sample was appropriate for a

1
2
3 factor analysis (George and Mallery 2007). To determine the factors and their associated items,
4
5 the following criteria were used, based on Kim and Walker (2012) : (a) factors with eigenvalues
6
7 greater than 1.0, (b) enough factors to meet a specified percentage of variance explained (i.e.,
8
9 usually 60% or higher), (c) items with a factor loading equal to or greater than .40, (d) items
10
11 shown to have a substantial common variance (i.e. a communality value equal or greater
12
13 than .40), and (e) identified factors and items which are interpretable in the theoretical context.
14
15 The initial 40 items were reduced to 30 under eight factors meeting the retention criteria,
16
17 explaining 60.4% of the variance. The resultant factors were labelled according to the three
18
19 dimensions above-mentioned (i.e. sport participation, psychosocial benefits and city image).
20
21 Sport participation includes two factors, namely (1) motivation before event (3 items, $\alpha = .733$)
22
23 and (2) motivation after event (3 items, $\alpha = .731$). Psychosocial benefits includes two factors,
24
25 namely (3) self-esteem (4 items, $\alpha = .845$), and (4) social bonding (4 items, $\alpha = .760$). City
26
27 image includes four factors, namely (5) affective image (5 items, $\alpha = .846$), (6) cultural
28
29 resources (4 items, $\alpha = .782$), (7) hygiene, safety and climate (3 items, $\alpha = .756$), and (8) tourism
30
31 services (4 items, $\alpha = .742$), see Table 1 for factors loadings, communalities, eigenvalues,
32
33 Cronbach's Alphas and mean scores.
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Table 1. Factors and items resulting from the principle component analysis

Factors and items	Factor loadings	Communalities	Eigenvalues	% of variance	Cronbach Alphas	MS (SD)
<i>Motivation before event (1)</i>			2.728	8.8	.733	
I increased my physical activity in the last few months in order to run Geneva marathon	.917	.71				3.81 (1.241)
Geneva marathon was my main motivation to keep running in the last few months	.824	.60				3.70 (1.348)
I started to run with the goal of running the Geneva marathon	.509	.52				3.32 (1.169)
<i>Motivation after event (2)</i>			2.263	7.3	.731	
I am likely to keep on running after the Geneva marathon	.765	.57				4.57 (.915)
Running the Geneva marathon gave me the wish to run other marathons in the future	.671	.55				4.05 (1.133)
Running the Geneva marathon gave me the wish to keep practicing sports	.861	.67				4.33 (.933)
<i>Self-esteem (3)</i>			3.937	12.7	.845	
Running the Geneva marathon made me proud of me	.828	.72				4.29 (.920)
Running the Geneva marathon gave me a better sense of well-being	.806	.70				4.18 (.912)
After running the Geneva marathon, I know that I can achieve ambitious objectives	.742	.53				3.91 (1.008)
My self-esteem has increased after running the Geneva marathon	.690	.61				3.74 (1.096)
<i>Social bonding (4)</i>			2.139	6.9	.760	
I feel more integrated to the city of Geneva after running the marathon	.841	.56				2.87 (1.179)
I feel closer to Geneva's inhabitants after running the marathon	.837	.41				2.85 (1.237)
I enjoyed interacting with my friends while running the marathon	.915	.66				3.54 (1.042)
I feel like I have more (digital) friends within the local community after running the marathon	.670	.48				2.34 (1.131)
<i>Affective image (5)</i>			1.767	5.7	.846	
According to you, Geneva is gloomy / cheerful	.810	.72				3.42 (.935)
According to you, Geneva is dull / exciting	.785	.70				3.09 (.966)
According to you, Geneva is unpleasant / pleasant	.685	.71				4.05 (.810)
According to you, Geneva is distressing / relaxing	.641	.67				3.68 (.961)
According to you, Geneva is traditional / modern	.728	.51				3.52 (.910)
<i>Cultural resources (6)</i>			2.108	6.8	.782	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46

Geneva offers interesting historical attractions (museums and/or art centers)	.597	.70				4.11	(.886)
Geneva offers entertainment	.707	.52				3.81	(.913)
Geneva offers a way of life that I enjoy	.762	.48				4.21	(.878)
Geneva has a very strong identity	.649	.41				3.82	(.987)
<i>Hygiene, safety and climate (7)</i>					1.581	5.1	.756
Geneva has a good standard of hygiene and cleanliness	.743	.64				4.44	(.762)
Geneva is safe	.812	.51				4.39	(.795)
Geneva has a good climate	.572	.59				3.98	(.811)
<i>Tourism services (8)</i>					2.201	7.1	.742
Geneva has good quality infrastructure (roads, airport, and/or utilities)	.656	.58				4.53	(.668)
Geneva has suitable accommodations	.804	.62				3.77	(.890)
Geneva has a good network of tourist information (tourist centers)	.719	.63				3.72	(.866)
Geneva has good shopping facilities	.625	.47				3.96	(.912)

Review Only

Two-step cluster analysis

A two-step cluster analysis was then performed on the factors identified from the PCA. It yielded three distinct and interpretable clusters through a solution whose BIC (0.2) was acceptable (see Table 2 for the importance of variables in the clustering solution). Following Norusis (2011), χ^2 -tests were performed on demographics (see table 3) and ANOVA tests were performed on items (see table 4) to identify significant differences between cluster.

Table 2. Cluster solution: variable importance

Factor name	Variable importance
Self-esteem	1
Motivation before event	0.69
Motivation after event	0.66
Tourism services	0.52
Social bonding	0.42
Cultural resources	0.24
Affective image	0.17
Hygiene, security and climate	0.16

Table 3. Distribution of demographics by cluster

Variables	C1 (44.2%)	C2 (32.8%)	C3 (23.0%)
<i>Gender</i>			
Men	78.8%**	59.2%	67.6%
Women	21.2%**	40.8%	32.4%
<i>Age</i>			
18-23	0.5%*	5.7%*	1.8%
24-30	10.9%	16.0%	10.6%
31-40	28.9%	32.0%	29.4%
41-50	33.1%	30.2%	37.0%*
51-60	21.4%*	12.5%	17.5%
> 60	5.2%	3.6%	3.6%
<i>Income (annual)</i>			
< 20 000 CHF	10.8%	12.8%	5.9%*
20 000 - 39 999 CHF	12.1%	14.7%	7.0%*
40 000 - 59 999 CHF	15.6%	13.5%	12.0%
50 000 - 79 999 CHF	12.1%	14.2%	15.6%
80 000 - 99 999 CHF	11.5%	9.8%	13.8%
> 99 999 CHF	37.9%	35.0%	45.7%
<i>Education</i>			
No-qualification	2.8%	1.8%	1.1%
Vocational training certificate	5.1%	4.4%	2.9%
Secondary education	12.4%	12.4%	10.6%
A-level or equivalent	10.7%	11.7%	5.8%*
Higher education	69.1%	69.7%	79.6%
<i>Place of residence</i>			
Geneva	19.7%	41.3%**	20.9%
Other Swiss canton	27.1%	31.9%	12.7%*
Rest of Europe	40.5%*	21.3%*	58.0%**
Rest of the world	6.9%*	2.5%*	4.4%
Not specified	5.8%	3.0%	2.1%
<i>Runner profile</i>			
1 st marathon	9.6%	24.5%**	13.1%
Occasional	6.6%**	36.0%	46.2%*

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Regular	83.8%**	39.6%	30.7%
Not specified	0%	0%	10%

Note: **p < 0.001 ; *p < 0.05

For Peer Review Only

Table 4. Comparison of items by cluster

Factors and items	C1 "Performance-focused"		C2 "Self-challengers"		C3 "Happy loafers"		F	P
	MS (SD)	Significantly different cluster(s)	MS (SD)	Significantly different cluster(s)	MS (SD)	Significantly different cluster(s)		
<i>Motivation before event (1)</i>								
I increased my physical activity in the last few months in order to run Geneva marathon	4.33 (.828)	3**	4.32 (.817)	3**	2.61 (1.225)	1** - 3**	398.97	.000
Geneva marathon was my main motivation to keep running in the last few months	4.12 (.932)	2** - 3**	3.87 (1.102)	1** - 3**	3.05 (1.288)	1** - 2**	102.91	.000
I started to run with the goal of running the Geneva marathon	3.82 (.994)	2** - 3**	3.58 (.767)	1** - 3**	2.65 (1.338)	1** - 2**	135.71	.000
<i>Motivation after event (2)</i>								
I am likely to keep on running after the Geneva marathon	4.20 (1.105)	2** - 3**	4.82 (.854)	1** - 3*	4.65 (.744)	1** - 2*	58.32	.000
Running the Geneva marathon gave me the wish to run other marathons in the future	3.81 (1.051)	2** - 3**	4.11 (.781)	1**	4.21 (1.321)	1**	19.21	.000
Running the Geneva marathon gave me the wish to keep practicing sports	4.05 (1.122)	2** - 3**	4.57 (.902)	1**	4.43 (.720)	1**	40.47	.000
<i>Self-esteem (3)</i>								
Running the Geneva marathon made me proud of me	4.05 (.669)	2**	4.54 (1.145)	1** - 3**	3.95 (.643)	1**	54.26	.000
Running the Geneva marathon gave me a better sense of well-being	4.36 (.650)	2* - 3**	4.49 (.690)	1* - 3**	3.61 (1.116)	1** - 2**	123.08	.000
After running the Geneva marathon, I know that I can achieve ambitious objectives	4.05 (.713)	2** - 3**	3.87 (.916)	1** - 3*	3.71 (1.069)	1** - 2*	17.81	.000
My self-esteem has increased after running the Geneva marathon	3.82 (.859)	2** - 3**	4.22 (1.005)	1** - 3**	3.13 (1.133)	1** - 2**	113.69	.000
<i>Social bonding (4)</i>								
I feel more integrated to the city of Geneva after running the marathon	2.36 (.961)	2**	3.77 (.979)	1** - 3**	2.41 (1.008)	2**	297.02	.000
I feel closer to Geneva's inhabitants after running the marathon	2.26 (.988)	2** - 3*	3.79 (1.024)	1** - 3**	2.44 (1.081)	1* - 2**	302.74	.000

I enjoyed interacting with my friends while running the marathon	3.04 (.124)	2** - 3**	4.21 (.982)	1** - 3**	3.44 (.965)	1** - 2**	157.67	.000
I feel like I have more (digital) friends within the local community after running the marathon	1.85 (1.135)	2** - 3**	3.02 (.901)	1** - 3**	2.09 (.966)	1** - 2**	169.11	.000
<i>Affective image (5)</i>								
According to you, Geneva is gloomy / cheerful	3.09 (.932)	2** - 3**	3.51 (.909)	1** - 3**	3.79 (.849)	1** - 2**	67.04	.000
According to you, Geneva is dull / exciting	2.76 (.913)	2** - 3**	3.12 (.871)	1** - 3**	3.41 (.954)	1** - 2**	54.87	.000
According to you, Geneva is unpleasant / pleasant	3.81 (.737)	2** - 3**	4.10 (.749)	1** - 3**	4.29 (.876)	1** - 2**	43.31	.000
According to you, Geneva is distressing / relaxing	3.38 (1.004)	2** - 3**	3.72 (.911)	1** - 3**	3.93 (.875)	1** - 2**	39.72	.000
According to you, Geneva is traditional / modern	3.33 (.878)	2** - 3**	3.51 (.856)	1** - 3**	3.72 (.915)	1** - 2**	22.03	.000
<i>Cultural resources (6)</i>								
Geneva offers interesting historical attractions (museums and/or art centers)	3.71 (.926)	2** - 3**	4.19 (.895)	1** - 3**	4.48 (.713)	1** - 2**	87.81	.000
Geneva offers entertainment	3.42 (.912)	2** - 3**	3.72 (.773)	1** - 3**	4.31 (.849)	1** - 2**	109.91	.000
Geneva offers a way of life that I enjoy	3.69 (.978)	2** - 3**	4.34 (.627)	1** - 3**	4.58 (.857)	1** - 2**	134.44	.000
Geneva has a very strong identity	3.33 (.994)	2** - 3**	3.92 (.753)	1** - 3**	4.28 (1.015)	1** - 2**	118.12	.000
<i>Hygiene, safety and climate (7)</i>								
Geneva has a good standard of hygiene and cleanliness	4.53 (.571)	2** - 3*	4.12 (.694)	1** - 3**	4.67 (.926)	1* - 2**	66.64	.000
Geneva is safe	4.49 (.658)	2** - 3*	4.03 (.623)	1** - 3**	4.64 (.970)	1* - 2**	77.23	.000
Geneva has a good climate	4.17 (.585)	2** - 3**	3.76 (.779)	1** - 3**	4.01 (.897)	1** - 2**	40.89	.000
<i>Tourism services (8)</i>								
Geneva has good quality infrastructure (roads, airport, and/or utilities)	4.60 (.482)	2** - 3**	4.31 (.630)	1** - 3**	4.77 (.806)	1** - 2**	54.75	.000

Geneva has suitable accommodations	3.85 (.877)	2** - 3**	3.41 (.695)	1** - 3**	4.12 (.847)	1** - 2**	74.81	.000
Geneva has a good network of tourist information (tourist centers)	3.79 (.775)	2** - 3**	3.12 (.811)	1** - 3**	4.28 (.660)	1** - 2**	218.02	.000
Geneva has good shopping facilities	3.86 (.733)	2** - 3**	3.53 (.936)	1** - 3**	4.43 (.868)	1** - 2**	105.13	.000

Note: Significantly different cluster(s) based on Tukey HSD Post-hoc test with **p < 0.001 ; *p < 0.05

For Peer Review Only

1
2
3 *The « performance-focused »*
4

5 The first and largest cluster (44.2%) contains 576 respondents. It is largely dominated by males
6 (78.8%) from 41 to 60 years old (54.5%) who are regular runners (83.8%). These respondents
7
8 come from various regions, notably European countries (40.5%) as well as, more than in the
9
10 two other clusters, non-European countries (6.9%). They are particularly sensitive to self-
11
12 esteem, a characteristic they share with the second cluster, although not on the same items.
13
14 Indeed, they have significantly higher scores at “after running the Geneva marathon, I know
15
16 that I can achieve ambitious objectives” (4.05 vs. 3.87, $p < 0.001$), possibly suggesting that by
17
18 “ambitious objectives”, they mean future marathons, while respondents from the second cluster
19
20 seem not to be as focused on performance and may have understood this item in a more general
21
22 manner. First cluster’s respondents are also sensitive to the motivation this event represented to
23
24 be actively engaged in sporting activities in the preceding months (i.e. “motivation before
25
26 event” factor), which is in line with their performance objectives. By contrast, they are
27
28 particularly non-sensitive to social bonding, probably because they come and/or run alone.
29
30 Regarding city image, this cluster has the lower scores on affective image and cultural
31
32 resources’ items, which can be interpreted as their low interest for elements like entertainment,
33
34 historical attractions or the cheerfulness or pleasantness of the city. They seem more attentive
35
36 to the quality of tourism services (one can imagine that they are looking for accommodations
37
38 which are near from the event, or that they expect proper transports in order to be in the best
39
40 possible conditions to run) as well as to hygiene, security and climate (and more particularly
41
42 climate compared to the two other clusters) probably for performance purposes once again.
43
44
45
46
47
48
49
50

51
52 *The « self-challengers »*
53

54 The second cluster (32.8%) contains 428 respondents. It has the most balanced distribution of
55
56 males (59.2%) and females (40.8%) among the three clusters. But it has the youngest population
57
58 (21.7% are under 30 years old). There are less regular runners (39.6%) and more occasional
59
60

runners (36.0%) than in the first cluster. Additionally, this second cluster has the largest proportion of respondents who were running their 1st marathon (24.5%). Another specificity of this cluster is that it contains significantly more respondents residing in Geneva (41.3%) or in other Swiss cantons (31.9%) than the two other clusters. For these runners, it seems that the marathon represents more a personal challenge than a standard competition. The fact that an important proportion of them comes from Geneva and its surroundings indicates that they chose this event not necessarily because of its specific characteristics, but because it took place not far from their home. In the same way as respondents from the first cluster, they are particularly sensitive to self-esteem, but more specifically to the item “running the Geneva marathon made me proud of me” (4.54 vs. 4.05, $p < 0.001$). Another similarity with the first cluster is that the *self-challengers* are sensitive to the motivation to practice sporting activities before the event, but unlike the *performance focused*, they also have higher scores at the “motivation after event” factor, as it seems that pursuing sporting activities and maintaining an active lifestyle is part of their personal challenge, in which the marathon represented a first step. In that sense, it can be noted that they have higher scores at the item “Running the Geneva marathon gave me the wish to keep practicing sports” than at the item “Running the Geneva marathon gave me the wish to run other marathons in the future”. A peculiarity of this cluster is that it is the most receptive to social bonding. More particularly, the items “I feel more integrated to the city of Geneva after running the marathon”, “I feel closer to Geneva’s inhabitants after running the marathon” and “I enjoyed interacting with my friends while running the marathon” (respectively 3.77, 3.79 and 4.21) have much higher scores in this cluster than in the two others. An interpretation is that these respondents, most of whom are from Geneva or its closest cantons, are more likely to come in groups of friends. Moreover, as running has evolved, in the last decades, from traditional sport associations towards more unformal “light communities” which are formed at the scale of neighborhoods (Scheerder, Noppe, and Vanreusel 2007), one can speculate that the

1
2
3 “self-challengers” cluster is notably composed by these small communities for which the event
4 is an opportunity to create or reinforce social ties between their members. City image items
5 scores are generally lower (i.e. 2nd or 3rd compared to the other clusters), probably due to the
6 fact that most of these respondents do not have a tourist point of view.
7
8
9
10
11

12 13 *The « happy loafers »*

14
15 The last cluster (23.0%) contains 301 respondents, 67.6% of whom are males and 32.4% are
16 females. There is a large proportion of occasional runners (46.2%), and more than half of its
17 members (62.4%) come from outside the country. It can also be noted that there are less
18 respondents over 50 years old than in the first cluster and less respondents under 30 years old
19 than in the second cluster. Regarding sport participation, a notable point is that this cluster has
20 the lowest scores at “motivation before event” items, meaning that they did not especially
21 engage in an intense preparation for this marathon, thus justifying the label “loafers”. With
22 respect to psychosocial benefits, while social bonding item scores are between those of the two
23 other clusters, self-esteem scores are significantly lower, here again probably indicating that
24 these respondents are not in search of a performance or a personal challenge when coming to
25 the event. By contrast, this cluster has the highest scores on all city image items (except
26 climate). Given the provenance (mostly foreign countries) of these respondents, a credible
27 interpretation is that their participation to the marathon is akin to a form of sport tourism, a stay
28 in Geneva canton during which the event constitutes an activity (and possibly the primary
29 motive) among others (museum visits, discovery of the city and its cultural attractions).
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

51 **Discussion**

52 *Implications for theory*

53
54 The purpose of this study was to explore the social impacts of participative events, which
55 received much less attention than in the context of spectator events. Without the ambition to
56
57
58
59
60

1
2
3 conduct a strict comparison between these two kinds of events, the goal was to look at the
4 existence and relative importance of such impacts, thus trying to fill several theoretical gaps.
5

6
7 A first aspect to mention is about the use of an integrated approach as suggested by Vargas-
8 Sanchez et al. (2010). Indeed, a multidimensional concept of perceived benefits was used in
9 this study, around three different axes: city image (4 factors distributed into 16 items), sport
10 participation (2 factors distributed into 6 items) and psychosocial benefits (2 factors distributed
11 into 8 items). This choice is an original input of this article in the sense that, to date, these three
12 different dimensions have been examined in separated researches.
13
14

15
16 A second aspect is that the data collected confirmed the intuition that participative events could
17 have an influence on the three dimensions studied here. The influence of sporting events on city
18 image has long been explored. In this respect, the results of this paper – notably the high sample
19 mean scores of items such as “Geneva offers interesting historical attractions”, “Geneva offers
20 a way of life that I enjoy”, or “Geneva has good quality infrastructure” – reflect what has been
21 found in former studies conducted by Chalip, Green, and Hill (2003), Kaplanidou and Vogt
22 (2007) or Manzenreiter (2010). Thus, organizing participative events is not less efficient when
23 the goal is to reach a positive influence of the event on the city. The effects on sport participation
24 received rather less attention than city image, maybe except for the last few years. Taks, Green,
25 Misener, and Chalip (2015) claimed that attending a sporting event had no influence on sport
26 participation. For the authors, different barriers exist in strengthening the relationship between
27 sporting events and sport participation. Nevertheless, Chalip, Green, Taks, and Misener (2016)
28 provided some suggestions (i.e. increasing the alliances between sport organisations, event
29 organisers and non-sport stakeholders) to reinforce the relationship between spectator events
30 and sport participation. The current research confirms the intuition that, contrary to spectator
31 events, participative events can increase sport participation, as suggested by the scores of
32 “Motivation before event” items such as “I increased my physical activity in the last few months
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 in order to run Geneva marathon”, or “Geneva marathon was my main motivation to keep
4
5 running in the last few months”. Another interesting point is that participative events could have
6
7 a long-term positive influence on sport participation. The sample mean score of an item like
8
9 “Running the Geneva marathon gave me the wish to keep practicing sports” was indeed quite
10
11 high (4.33). In the light of this data, organizing a participative event seems particularly efficient
12
13 for a local community when the goal of public authorities is to increase sport participation.
14
15 Psychosocial benefits are at the heart of social impacts studies focused on residents (Ritchie
16
17 1984, Gibson 1988). Our findings show that participants can also be subjected to such effects,
18
19 in terms of both self-esteem and social bonding.
20
21
22

23
24 A third aspect to underline refers to the method used in this survey. Cluster analyses remain
25
26 scarce in sport management literature. Ross (2007) used this approach in order to segment NBA
27
28 fans. He found that the members of each spectator cluster could be further distinguished based
29
30 upon their gender, educational level, and household income. More generally, demographics are
31
32 often put aside from analyses, which tend to focus on core variables from theoretical models.
33
34 For example, Kim and Walker (2012) identified several dimensions of psychic income,
35
36 including items such as “social interactions with the local community”, “sense of belonging”,
37
38 or “socializing opportunities”. Their results concerned the whole sample of residents
39
40 interviewed. By contrast, in the present study, demographics are a full component of the
41
42 analysis and allow for a better vision of the three clusters. On this basis, the social benefits are
43
44 found not to be equally distributed among participants. The “performance-focused” are
45
46 sensitive to self-esteem but not to social bonding. The “happy loafers” are not especially in
47
48 search of personal challenge but, are particularly sensitive to city image factors. As a
49
50 consequence, theoretical outputs could really be adjusted and deepened by using this kind of
51
52 methodologies.
53
54
55
56
57

58
59 *Implications for practice*
60

1
2
3 As an event organizer, it could be enlightening to take the characteristics of the three clusters
4 under consideration in order to better answer the needs of these different targets and to
5 maximize their satisfaction. Runners who belong to the “performance focused” cluster are
6 firstly interested in their chronometric objectives. The key factors to attract these runners are to
7 explain how fast is the race (low percentage of declivity throughout marathon course), the date
8 of the race (suitable with the other important marathons of the season) and the attractiveness of
9 the city where the marathon is held (when different marathons provide equal opportunities to
10 reach an ambitious objective, runners are likely to select the one organized in the most
11 attractive, exciting or differentiating city). These runners are also sensitive to statistics and
12 every technical information which could support or explain their performance. Providing such
13 data represents a key criteria for organizers to attract this category of customers. The “self-
14 challengers” are mainly people who live in the city (and its surroundings) where the event is
15 held. Then, it would make no sense to promote facilities, environment or tourism attractions
16 that they already know. However, promoting local stakeholders and sport clubs that would be
17 able to offer fitting sporting activities, and giving these participants the opportunity to extend
18 social interactions with each other (like parties or evening events) sound like relevant ways to
19 maximize the recruitment of this category of runners, their satisfaction and the effects on sport
20 participation and psychosocial benefits. The “happy loafers”, as described in the results section,
21 are more likely to be influenced by tourism opportunities and facilities. The ability of the city
22 and the organizers to promote historical, cultural resources and entertainment offers represents
23 a decisive criteria to attract people belonging to this category and to maximize their satisfaction.
24 This has already been mentioned by Huang et al. (2015) about the Shanghai marathon. But
25 because this finding seems to be partly in contradiction with suggestions associated with the
26 “performance-focused” (for example regarding the path of the course, a choice has to be made
27 between its fastness and its patrimonial aspects, i.e. the fact that it passes near historical
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 monuments or charming parks), the ability of organizers and local authorities to manage these
4
5 contradictions will be decisive.
6
7

8 *Limitations and future research*

9
10
11 Several limitations of this research need to be highlighted. The first one relates to the concept
12
13 of social impact itself. Indeed, the growing literature in recent years has improved its theoretical
14
15 richness and in the same time, the complexity of its definitions. Hence, if this paper has the
16
17 merit of dealing with several dimensions of social impact related to participative sporting
18
19 events, it did not capture all of them. Future research should therefore seek to assess all the
20
21 various social dimensions such events can cover, knowing that some dimensions which have
22
23 already been identified – such as community pride, civic pride, or resuscitate areas (Kim &
24
25 Walkder, 2012) – apply to host city residents but not to event participants.
26
27

28
29 Second, if this paper aimed to balance the lack of knowledge about the social impact of
30
31 participative events, only one event has been studied, which is not enough to generalize
32
33 findings. Considering our results, one can hypothesize that the three clusters that were identified
34
35 could also be found in others marathons but in different proportions. Moreover, the event which
36
37 has been selected is a marathon, because it fitted the research questions. However, other
38
39 participative events exist (cycling, swimming, etc.) that could provide interesting results.
40
41

42
43 Third, putting aside sport participation, the goal of this research was to examine the influence
44
45 of participative events on psychosocial benefits and territorial image. While the results appear
46
47 to be conclusive in the general context of sporting events, other kinds of events (like music or
48
49 film festivals) may be able to better fill the objectives of local authorities on these two
50
51 dimensions. This research is not able to identify the best event strategy for a given territory with
52
53 regard to both its goal and its strengths/weaknesses. Future research could therefore seek to
54
55 compare the opportunity of designing a local strategy based either on sporting events or on
56
57 other types of events.
58
59
60

1
2
3 A last limit relates to the nature of collected data. As a matter of fact, data in this paper are
4 based on assertions regarding respondents' intentions (to keep on running, to keep on doing
5 exercise, to go back in Geneva for tourism) or feelings (self-esteem, well-being, attachment to
6 the local community). This research does not ensure that people intentions will be followed-up
7 by actual behaviors. An interesting avenue would thus lie in the design of methodologies better
8 able to measure behaviors, notably with a long term perspective.
9
10
11
12
13
14
15
16

17 **Conclusion**

18 Because economic impacts of sporting events face important debates regarding both the method
19 used and the reality of their existence, a growing interest for non-strictly economic effects
20 appeared in the last few years. The originality of this survey is to pay attention to participative
21 events while literature is mainly focused on spectator events. Its main goal is to assess the reality
22 and the importance of the influence of participative events on city image, sport participation
23 and psychosocial benefits. The method, using a cluster analysis, and results have been
24 described. The more engaging dimension of participative events explain some differences in
25 the results obtained, in comparison to what can be found in the literature.
26
27
28
29
30
31
32
33
34
35
36
37

38 However, after conducting this survey, and despite its theoretical outputs, it is still difficult to
39 assure that a city should better organize a participative event rather than a spectator event. If
40 some factors like self-esteem and sport participation seem more positively influenced by a
41 participative event, the latter are able to attract more people and to benefit from a wider media
42 exposure which could be helpful when the goal is to improve the image or to strengthen city's
43 awareness. As a result, one of the major practical interest of this survey is to give local
44 authorities a large scope of opportunities and information about how helpful participative events
45 can be in order to reach a positive influence in the field of social impacts. The major challenge
46 for the cities is to consider a set of sporting events, either spectator or participative, that local
47 authorities can operate in regard to the current strategy and the goal that they want to achieve.
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 Both spectator events and participative events can provide a valuable heritage for the
4
5 community. The strategic outcome of this survey is to confirm that, the cities which do not have
6
7 the resources or the critical size to host a mega sporting events (FIFA World Cup, Olympic
8
9 Games, Tour de France, Super Bowl, etc.), can base their development on participative events;
10
11 the latter being able to have a positive influence on local community in terms of city image,
12
13 sport participation or psychosocial benefits.
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For Peer Review Only

References

- Alonso-Dos-Santos, M., Calabuig, F., Montoro, F., Valantine, I., and Emeljanovas, A. 2014. "Destination image of a city hosting sport event: effect on sponsorship", *Transformations in Business and Economics* 13 (2): 161-173.
- Andereck, K. L., K.M. Valentine, R.C. Knopf, and C. Vogt. 2005. "Residents' perceptions of community tourism impacts." *Annals of Tourism Research* 32 (4): 1056–1076.
- Anttiroiko, A-V. 2014. *The political economy of city branding*. Abingdon: Routledge.
- Ap, J. 1992. "Residents' perceptions on tourism impacts". *Annals of Tourism Research* 19 (4): 665–690.
- Armenakyan, A., L.A. Heslop, J. Nadeau, N. O'Reilly, and I.R.R. Lu. 2012. "Does hosting the Olympic Games matter? Canada and Olympic Games images before and after the 2010 Olympic Games." *International Journal of Sport Management and Marketing* 12 (1/2): 111-140.
- Balduck, A. L., M. Maes, and M. Buelens, 2011. "The social impact of the Tour de France: Comparisons of residents' pre- and post-event perceptions." *European Sport Management Quarterly* 11: 91–113.
- Berkowitz, P., G. Gjermano, L. Gomez, and G. Schafer. 2007. "Brand China: using the 2008 Olympic Games to enhance China's image." *Place Branding and Public Diplomacy* 3: 164-178.
- Brown, A., and Massey, J. 2001. Literature review: The impact of major sporting events. *Manchester Institute for Popular Culture, Manchester Metropolitan University*.
- Burns, J. P. A., Hatch, J., and Mules, T. J. (1986). The Adelaide Grand Prix: the impact of a special event. *The Adelaide Grand Prix: the impact of a special event*.

- 1
2
3 Chalip, L., B.C. Green, and B. Hill. 2003. "Effects of sport event media on destination image
4 and intention to visit." *Journal of Sport Management* 17 (3): 214-234.
5
6
7
8 Chalip, C., B.C. Green, Taks. M. and L. Misener. 2016. "Creating sport participation from
9 sport events: making it happen." *International Journal of Sport Policy and Politics* (9)
10
11
12
13 2: 257-276.
14
15 Choong-Ki L., T. Taylor, L. Yong-Ki, and L. Bongkoo. 2005. "The Impact of sport mega-
16 event on destination image: the case of the 2002 FIFA World Cup Korea/Japan."
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
- Coalter, F., Taylor, J. (2008). Large Scale Sports Events: Event Impact Framework. Report to
UK Sport. University of Stirling.
- Cornelissen, S., Bob, U., and Swart, K. (2011). Towards redefining the concept of legacy in
relation to sport mega-events: Insights from the 2010 FIFA World Cup. *Development
Southern Africa*, 28(3), 307-318.
- Crompton, J. L. 1995. "Economic impact analysis of sports facilities and events: eleven
sources of misapplication." *Journal of Sport Management* 9: 14–35.
- Crompton, J.L., S. Lee, and T.S. Shuster. 2001. "A guide for undertaking economic impact
studies: the Spring fest example." *Journal of Travel Research* 40: 79-87.
- Crompton, J. L. 2004. "Beyond economic impact: An alternative rationale for the public
subsidy of major league sports facilities." *Journal of Sport Management* 18: 40–58.
- Deccio, C., and S. Baloglu. 2002. "Non-host community resident reactions to the 2002 Winter
Olympics: The spillover impacts." *Journal of Travel Research* 41 (1): 46–56.

- 1
2
3 Djaballah, M., Hautbois, C., and Desbordes, M. 2015. Non-mega sporting events' social
4
5 impacts: a sensemaking approach of local governments' perceptions and
6
7 strategies. *European Sport Management Quarterly*, 15(1), 48-76.
8
9
10 Downward, P., J. Riordan. 2007. "Social interactions and the demand for sport: An economic
11
12 analysis." *Contemporary Economic Policy*, 25 (4): 518-537.
13
14
15 Fahy, J., and Jobber, D. 2012. Foundations of marketing.
16
17
18 Frawley, S., and Cush, A. (2011). Major sport events and participation legacy: The case of the
19
20 2003 Rugby World Cup. *Managing leisure*, 16(1), 65-76.
21
22
23 Funk, D.C., K. Toohey, and T.J. Bruun. 2007. "International Sport Event Participation: Prior
24
25 Sport Involvement, Destination Image, and Travel Motives." *European Sport*
26
27 *Management Quarterly* 7: 227-248.
28
29
30 George, D., and Mallery, P. 2007. SPSS for windows: Step by step. Boston: Pearson
31
32 Education Inc.
33
34
35 Gibson, H. J. 1998. "Sport tourism: A critical analysis of research." *Sport Management*
36
37 *Review* 1 (1): 45-76.
38
39
40 Gibson, H., M. Walker, B. Thapa, K. Kaplanidou, S. Geldenhuys, and W. Coetzee.
41
42
43 2014. "Psychic income and social capital among host nation residents: A prepost
44
45 analysis of the 2010 FIFA World Cup in South Africa." *Tourism Management* 44: 113-
46
47 122.
48
49
50 Gittell, R., and Vidal, A. 1998. *Community organizing: Building social capital as a*
51
52 *development strategy*. Sage publications.
53
54
55 Gursoy, D., and D.G. Rutherford. 2004. "Host attitudes toward tourism: An improved
56
57 structural model." *Annals of Tourism Research* 31 (3): 495-516.
58
59
60

- 1
2
3 Gursoy, D., and Kendall, K. W. 2006. Hosting mega events: Modeling locals' support. *Annals*
4 *of Tourism Research*, 33(3), 603-623.
5
6
7
8 Hallmann, K., K. Kaplanidou, and C. Breuer. 2010. "Event image perceptions among active
9 and passive sports tourists at marathon races." *International Journal of Sports*
10 *Marketing and Sponsorship* 12 (1): 37-52.
11
12
13 Hallmann, K., and Breuer, C. 2010a. Image fit between sport events and their hosting
14 destinations from an active sport tourist perspective and its impact on future
15 behaviour. *Journal of Sport and Tourism*, 15(3), 215-237.
16
17
18 Hallmann, K., and Breuer, C. 2010b. The impact of image congruence between sport event
19 and destination on behavioural intentions. *Tourism Review*, 65(1), 66-74.
20
21
22
23 Heere, B., M. Walker, H. Gibson, B. Thapa, S. Geldenhuys, and W. Coetzee. 2013. "The
24 power of sport to unite a nation: The social value of the 2010 FIFA World Cup in South
25 Africa." *European Sport Management Quarterly* 14 (4): 450-471.
26
27
28
29 Higham, J. E. 2005. *Sport tourism destinations: issues, opportunities and analysis*. Abingdon:
30 Routledge.
31
32
33
34 Hirschi, T. 1969. A control theory of delinquency. *Criminology theory: Selected classic*
35 *readings*, 289-305.
36
37
38
39
40
41
42
43
44
45
46 Huang, H., L. Mao, J. Wang, and J. Zhang. 2015. "Assessing the relationships between image
47 congruence, tourist satisfaction and intention to revisit in marathon tourism: the Shanghai
48 International Marathon." *International Journal of Sports Marketing and Sponsorship*, 16
49 (4): 46-66.
50
51
52
53
54
55
56 Inoue, Y., and C. Havard. 2014. "Determinants and Consequences of the Perceived Social
57 Impact of a Sport Event." *Journal of Sport Management* 28 (3): 295-310.
58
59
60

- 1
2
3 Jones, C. 2001. "Mega-events and host-region impacts: Determining the true worth of the
4
5 1999 Rugby World Cup." *International Journal of Tourism Research* 3 (3):
6
7 241–251.
8
9
- 10 Kaplanidou, K., and H. Vogt. 2007. "Affective event and destination image: Their influence
11
12 on Olympic travelers' behavioral intentions." *Event Management*, 10 (2): 159-173
13
14
- 15 Kaplanidou, K., K. Karadakis, H. Gibson, B. Thapa, M. Walker, S. Geldhuys, and W.
16
17 Coetzee. 2013. "Quality of life, event impacts, and mega event support
18
19 among South African residents before and after the 2010 FIFA World Cup."
20
21 *Journal of Travel Research* 52 (2): 631-645.
22
23
- 24
25 Karadakis, K., and Kaplanidou, K. 2012. Legacy perceptions among host and non-host
26
27 Olympic Games residents: A longitudinal study of the 2010 Vancouver Olympic
28
29 Games. *European Sport Management Quarterly*, 12(3), 243-264.
30
31
- 32
33 Kavaratzis, M., and G.J. Ashworth. 2005. "City branding: an effective assertion of identity or
34
35 a transitory marketing trick?" *Tijdschrift voor Economische en Sociale Geografie* 96
36
37 (5): 506-514.
38
39
- 40 Kavetsos, G., and Szymanski, S. 2010. National well-being and international sports
41
42 events. *Journal of economic psychology*, 31(2), 158-171.
43
44
- 45 Kim, S.S., and J.F. Petrick. 2005. "Residents' perceptions on impacts of the FIFA 2002 World
46
47 Cup: The case of Seoul as a host city." *Tourism Management* 26: 25-38.
48
49
- 50 Kim, W., and M. Walker. 2012. "Measuring the social impacts associated with Super Bowl
51
52 XLIII: preliminary development of psychic income scale." *Sport Management Review*
53
54 15: 91-108.
55
56
57
58
59
60

- 1
2
3 Maennig, W. 2008. *The feel-good effect at mega sport events: Recommendations for public*
4 *and private administration informed by the experience of the FIFA World Cup*
5 *2006* (No. 18). Hamburg contemporary economic discussions.
6
7
8
9
10 Manzenreiter, W. 2010. "The Beijing games in the western imagination of China: The weak
11 power of soft power." *Journal of Sport and Social Issues* 34 (1): 29-48.
12
13
14
15 Norušis, M. J. 2011. *IBM SPSS statistics 19 guide to data analysis*. Upper Saddle River, New
16 Jersey: Prentice Hall.
17
18
19
20 Onyx, J. and P. Bullen. 2000. "Measuring social capital in five communities." *The Journal*
21 *of Applied Behavioural Sciences* 36 (1): 23-41.
22
23
24
25
26 Preuss, H., and Arne Solberg, H. 2006. Attracting major sporting events: The role of local
27 residents. *European sport management quarterly*, 6(4), 391-411.
28
29
30
31 Putnam, R. D. 1995. Tuning in, tuning out: The strange disappearance of social capital in
32 America. *PS: Political science and politics*, 28(4), 664-683.
33
34
35
36 Richard, S. and I. Jones. 2008. "The great suburban Everest: an insiders' perspective on
37 experiences at the 2007 Flora London Marathon." *Journal of Sport and Tourism*, 13 (1):
38 61-77.
39
40
41
42
43 Richman, E. L., and Shaffer, D. R. (2000). If you let me play sports: How might sport
44 participation influence the self-esteem of adolescent females?. *Psychology of Women*
45 *Quarterly*, 24(2), 189-199.
46
47
48
49
50 Ritchie, J. R. 1984. "Assessing the impact of hallmark events; conceptual and research
51 issues." *Journal of Travel Research* 23 (1): 2-11.
52
53
54
55
56 Rosenberg, M. 1965. *Society and the adolescent self-image*. Princeton. New Jersey: Princeton
57 University Press.
58
59
60

- 1
2
3 Ross, S. D. 2007. "Segmenting sport fans using brand associations: A cluster analysis." *Sport*
4
5 *Marketing Quarterly*, 16 (1): 15-24.
6
7
- 8 Rundle-Thiele, S., K. Kubacki, A. Tkaczynski, and J. Parkinson. 2015. "Using two-step
9
10 cluster analysis to identify homogeneous physical activity groups." *Marketing*
11
12 *Intelligence and Planning* 33 (4), 522-537.
13
14
- 15 Ryan, J. 2008. "The Finnish country-of-origin effect: The quest to create a distinctive identity
16
17 in a crowded and competitive international market place." *Journal of Brand*
18
19 *Management* 16 (1/2): 13-20.
20
21
- 22 Sarstedt, M., and Mooi, E. 2014. Cluster analysis. In *A concise guide to market research* (pp.
23
24 273-324). Springer, Berlin, Heidelberg.
25
26
- 27 Scheerder, J., L. Noppe, and B. Vanreusel. 2007. "The rise of light communities in sport. The
28
29 case of running". In *15th Congress of the European Association for Sport Management*
30
31 *(EASM)*: 12-15.
32
33
- 34 Slutzky, C. B., and Simpkins, S. D. (2009). The link between children's sport participation
35
36 and self-esteem: Exploring the mediating role of sport self-concept. *Psychology of Sport*
37
38 *and Exercise*, 10(3), 381-389.
39
40
- 41 Sousa, M. W. 2010. "Belonging to common: Identity in transition times." *Significação* 34: 31-
42
43 52.
44
45
- 46 Taks, M. 2013. "Social sustainability of non-mega sport events in a global world." *European*
47
48 *Journal for Sport and Society* 10 (2): 121-141.
49
50
- 51 Taks, M., L. Chalip, and B.C. Green. 2015. "Impacts and strategic outcomes from non-mega
52
53 sport events for local communities (introduction to the special issue)." *European Sport*
54
55 *Management Quarterly* 15 (1): 1-6.
56
57
58
59
60

- 1
2
3 Taks, M., M. Littlejohn, L. Wood, and R. Snelgrove. 2016. "Construct validity of social
4 *impact scales of sport events.*" Working paper. University of Windsor Repository:
5 <http://scholar.uwindsor.ca/humankineticspub>.
6
7
8
9
10 Taks, M., B.C. Green, L. Misener, and L. Chalip. 2018. "Sport participation from sport
11 events: why it doesn't happen?" *Marketing Intelligence and Planning*. 36 (2): 185-198.
12
13
14
15 Vargas-Sanchez, A., N. Porras-Bueno, and M. Angeles Plaza-Mejia. 2010. "Explaining
16 residents' attitudes to tourism: Is a universal model possible?" *Annals of Tourism*
17 *Research*, 38 (2): 460-480.
18
19
20
21
22
23 Waitt, G. 2003. "Social impacts of the Sydney Olympics." *Annals of Tourism Research* 30
24 (1): 194–215.
25
26
27
28 Weed, M., Coren, E., Fiore, J., Mansfield, L., Wellard, I., Chatziefstathiou, D., and Dowse, S.
29 (2009). A systematic review of the evidence base for developing a physical activity and
30 health legacy from the London 2012 Olympic and Paralympic Games. *Department of*
31 *health*.
32
33
34
35
36
37
38 Zimbalist, A. (2010). Is it worth it?. *Finance and Development*, 47(1), 8-11.
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Referee: 1

Comments to the Author

Dear author:

The article deals with an interesting and poorly analysed topic in the area of research on the social impact of sporting events. It is from the perspective of the participant and not exclusively from the city resident, although it is included in the study.

The paper contains all the sections for a research article and contains no serious errors.

However, it is recommended to review the following aspects:

1) Literature Review: A definition or conceptual approach to the social impact of sporting events is lacking.

A definition from Taks, Chalip, and Green (2015) has been added.

2) Method: There is a lack of a sociodemographic description of the sample according to the variables consulted: age, gender, educational level, place of residence...

The description has been added

It is recommended to indicate the type of scale used to measure the items (Likert) and how many levels (1 totally disagree-5 totally agree; 1-7...).

Added

3) Results: Taking into account the multidimensional nature of the scale and the probability of correlation between constructs. Why is the varimax rotation method used, appropriate when the factors expected to be found are not correlated, and not oblimin, more appropriate when the factors are expected to be correlated?

We actually did not know the oblimin rotation. We based on several papers that used varimax rotation, for example "Liu, D. (2015). The image impact of mega-sporting events perceived by international students and their behaviour intentions. International Journal of Sports Marketing and Sponsorship, 16(2), 22-36" used a varimax rotation with affective and cognitive city image items similar to ours. Following your comment, we tried an oblimin rotation. Factor loadings (see table below) were slightly different but the items loaded within the same factors, so we did not change the rotation within the paper. Anyway thank you for this explanation that will help us better use rotations for PCA.

Matrice de structure

	Composante							
	Before	After	Self-esteem	Social bonding	Affective	Cultural	Hygiene	Services
Cognitive_infrastructure								,654
Cognitive_accomodations								,790
Cognitive_information								,670
Cognitive_hygiene							,771	
Cognitive_safe							,841	
Cognitive_shopping								,618

1
2
3
4 In table 1 it is recommended to include the standard deviation in parentheses next to the mean.
5

6 **Added**
7

8 It is recommended to put a table with the mean scores and their standard deviation for each item
9 according to the group or cluster of subjects found. This table should include the value of the ANOVA
10 statistic (F) and its associated probability for each indicator. Thus, it could be seen if there are
11 differences in mean scores at a statistically significant level.
12

13 **Added**
14

15
16 4) Discussion and conclusions: Review the spelling of the surname "Vargas-Sanches" and change it to
17 "Vargas-Sanchez".
18

19 **Spelling changed**
20

21
22 It is necessary to indicate possible future lines of research and limitations of the study.
23

24 **A "Limitations and future research" section as been developed.**
25
26
27
28

29 Referee: 2
30

31 Comments to the Author

32 Good article well organized and structured but the fact there is only one case could be confusing for
33 the conclusion and discussion. Moreover Marathons are specific participative sporting events it has
34 to be discuss
35
36

37 **See the modifications and precisions provided above.**
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60