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Legacy of the Beijing Olympic Games: a non-host city perspective

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Research question: This paper examines the legacy of the Beijing Olympics perceived by non-host city residents almost five years after the Games and how that perception would affect attitude towards the hosting of the Games.

Research methods: An empirical survey study was conducted in which data were collected from 468 residents of Shanghai through structured questionnaires. Exploratory factor analysis (EFA) identified seven factors underlying the perceived legacy of the Beijing Olympics: 'Psychic income and social capital', 'Infrastructure and skills development', 'Networks and cooperation', 'Environment', 'Tourism and economics', 'Sport and health' and 'Identity and culture'.

Results and findings: The findings demonstrate that the level of perceived legacy was significantly above the mid-point on all of the dimensions. In contrast, existing literature in western context demonstrated that on many dimensions values were below the mid-point, suggesting that the economic and cultural backgrounds of residents would make a difference. The paper also confirmed that perceived legacy would positively affect residents' attitude towards the hosting of Olympic Games, further highlighting the importance of continuous legacy leverage of Olympics.

Implications: Evidence from this study points to the danger of underestimating the effort required by event planners to harness legacy and shift perception of host city image. More needs to be done, post securing event rights, to communicate with national and international audiences particularly in the developing world.

Keywords: resident perception; Olympic legacy; non-host city; factor analysis

Introduction

The Olympic Games attracts significant economic, social, political and cultural importance (Girginov & Parry, 2005) and is a catalyst for urban regeneration and economic growth (Dobson, 2000; Dobson & Gratton, 1995; Roche, 1992). However, competition to stage the Olympics is diminishing with 11 cities bidding for the 2004 Olympics to 5 cities for the 2020 Olympics (Chappelet, 2013). While a successful bid is expected to result in major investment in sporting facilities and supporting infrastructure to promote economic activity (Gratton, Shibli, & Coleman, 2005), there are examples where events such as the 2004 Athens Olympics have brought about economic havoc rather than the economic prosperity and affluence that is often promised.

When Beijing won the rights to host the 2008 Summer Olympic Games it received global attention. The successful bid brought with it an opportunity for China to show the

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world that it was set for economic growth and modernisation against a history of communist rule (Economy & Segal, 2008). Owen (2005) explored the benefits that the Chinese people sought from the games with the growing realisation that the event would bring enormous benefits. Travel and tourism was expected to rise to record levels, new facilities would be built, dilapidated houses and neighbourhoods smartened up, subway lines constructed, a major investment in urban regeneration would begin (including a new airport terminal, subway line and business building programme) and multiple new water treatment plants with water and air source heat pump systems would be installed to reduce air pollution and water shortages (Lee, Lee, Kang, Lee, & Jeon, 2012). It is this evidence that shows that there has been a shift towards bid activity from emerging states which has also brought with it a shift away from a sole focus on economic benefits to a method of leveraging and overturning negative perceptions abroad. New powers such as China, Brazil and Russia have most recently been very active in successfully bidding for major events such as the Summer and Winter Olympics and the Football World Cup.

The government initiated a programme to change behaviour and to modernise Beijing including campaigns to forbid spitting, smoking, littering, queue jumping and impolite behaviour. It created programmes to put right the incorrect translations of English on signs and menus and provided English language classes to service providers such as taxi drivers.

However, disruptions to the torch relay and the sale of tainted baby formula which led to the deaths of a number of children led to a difficult public relations problem. These concerns in addition to the federal and city government action plans for the Olympics caused the wider population to limit their expectations (Lee et al., 2012).

The examination of residents, and non-residents, perceptions of mega-event impacts can be beneficial as they have the opportunity to reveal the real magnitude of any event legacy. These perceptions can often change over time as the expected outcomes for their quality of life changes (Guala & Turco, 2009). This points to a growing importance of resident perception research as the results can shape the direction of event organising committees and local governments as they plan and execute their event programmes. Indeed an understanding of the importance of legacy outcome can help to ensure that positive legacy is leveraged and negative legacy minimised and that any concerns over infrastructure developments and facilities are eased (Glynn, 2008).

Large-scale events have unique qualities that present special problems and opportunities because not only host residents are affected by them. Peripheral communities, or non-host city residents, will be affected by mega-events due to the size and scope of them and the international attention that they bring. While extensive research has been conducted on host-resident perceptions of mega-event legacy there is very little sport, event and tourism literature which examines the perceptions of non-host city residents (Deccio & Baloglu, 2002). Accordingly, this paper seeks to examine the legacy of the 2008 Beijing Summer Olympic Games perceived by Shanghai residents.

Literature review

Sport events can raise the profile of a city and are often linked to a city's desire to re-invent, or re-image, itself and provide urban regeneration and tourism development (Bianchini & Schwengel, 1991; Bramwell, 1995; Ritchie, Shipway, & Cleeve, 2009; Roche, 1994). The hosting of these mega-events is routinely underpinned therefore by long-term economic and social consequences, or legacy (Mules & Faulkner, 1996).

Indeed, as Kim and Petrick (2005) suggest, mega-event authorities will often examine, and take great interest in economic criteria rather than spending any genuine time exploring the wider social and cultural impacts of their event. Ritchie et al. (2009) confirm that there are three main reasons for this. First, the measurement of social and cultural impacts will tend to be viewed as external to economic impact evaluations. Second, such impacts are themselves difficult to measure and are often intangible. Finally, social and cultural impacts tend to throw up negative factors, leading to a lack of motivation to measure them. However, it is vital that the perception of a broad range of factors and impacts is considered to provide a balanced view. Consequently this review will split into two key sections. The first section provides a background to the research by focussing on the potential positive and negative impacts associated with staging mega-events, and the relevance of this to the Beijing Games. This will be followed by a review of previous studies and a theoretical framework.

The benefits of hosting major sport events have become an increasingly controversial topic in sport event management literature with a variety of benefits being suggested for host cities. More and more literature has focussed on actual impacts, particularly the economic impacts (Dobson, 2000; Dobson & Gratton, 1995; Gratton et al., 2005; Gratton & Preuss, 2008; Hall, 2006; Solberg & Preuss, 2007; Roche, 1992; Tien, Lo, & Lin, 2011) given the view that numerous visitors travel and spend significant sums during their stay.

However, in stark contrast to the economic impacts, social and cultural impacts are often less tangible though equally well documented (see Chalip, 2004; Chalip & Costa, 2005; Chalip, Green, & Hill, 2003; Hall, 1992; Smith, 2005; Xing & Chalip, 2006) with one or two arguing that any social benefit may be greater in the long term when considered against the short-term economic gains a city can generate (Liu & Gratton, 2010). Indeed, according to Kim and Walker (2012), the importance of the psychological benefits has been recognised in the fields of tourism and event management since Ritchie (1984) posited the issue. It is reasonable to expect that the successful hosting of the Olympic Games should be able to generate an enormous emotional capital including pride and can-do feeling, as suggested by many authors (Crompton, 2001; Karadakis & Kaplanidou, 2012). For many Chinese, this pride was further enhanced as the hosting of the Beijing Olympics has been widely hailed in the media as a century-long dream come true (Luo & Huang, 2013).

With such a focus on sport events being used as leverage against a broader tourism and economic strategy, it is important to note that we cannot simply judge the success of an event on its short-term impact; we need to consider long-term post-event legacy.

The concept of legacy was first considered in an Olympic context during the 1990s with a focus on the planning of the 1996 Atlanta Games, given the organisers desire to 'leave a legacy' (see Chappelet, 2008). Event legacy, as used by the International Olympic Committee (IOC), quite simply refers to the importance of sporting facilities, workforce and skills development and community programmes that should be left behind and 'turned over' to the public or local sport organisations after the Games have reached their conclusion (Gratton & Preuss, 2008). Such legacies can have a lasting positive impact on communities when coordinated strategically, particularly in the context of project management and volunteering, highlighting a clear link between community development programmes and skills. The main problem with the term legacy is that organising committees would imply that the term was broadly positive and that there were no negative impacts (Cashman, 2005). This has led Preuss (2007) to define legacy further by indicating that a legacy can be considered as planned or unplanned consequences that may be positive

or negative and/or tangible or intangible structures created for and by a sport event that remain in place longer than the event itself. Chappelet (2012) has developed a working definition of legacy which is consistent with those proposed by Preuss and others (see Gratton & Preuss, 2008; Mangan, 2008; Masterman, 2009).

As noted above, there are many examples of positive legacy in the literature which range from those that are immediately recognisable (sport facilities, new roads, subways and business networks) to those that are more difficult to quantify (improved image and reputation, feel good factors, social and cultural benefits; Gratton & Preuss, 2008; Karadakis & Kaplanidou, 2012; Solberg & Preuss, 2007). There are also a number of negative legacies that might remain: construction debt, new roads can bring too much traffic or noise, sport facilities that become 'white elephant' infrastructure, opportunity costs, crowding out effects, increases in property rents, displacement of residents and so on (Karadakis & Kaplanidou, 2012; Liu & Wilson, 2014; Mangan, 2008).

In order to capitalise on the positive benefits and manage the negative legacies Cashman (2005) identified six dimensions that could be considered in impact analysis. This has been followed by Chappelet and Junod (2006) who refined this to five dimensions. And later on, Gratton and Preuss (2008) and Agha, Fairly, and Gibson (2012) identified six dimensions and eight dimensions, respectively. By synthesising this literature we can assume four predominant dimensions which categorise the major legacy effects of mega-events: urban regeneration and infrastructure; knowledge, skill development and education; image, national pride and culture; and networks and cooperation. Meanwhile a fifth legacy appears appropriate to be included from Gratton, Liu, Ramchandani, and Wilson (2012), i.e. sports legacy. These dimensions in their broadest sense are reflected above and are used for the remainder of this paper. In the case of Beijing we can see a number of outcomes based on this structure.

Legacies of mega-events

It has been reported that a \$51 billion investment makes Sochi 2014 the most expensive games ever, but Beijing is widely regarded as the most expensive summer Olympic Games in history with a figure of \$40 billion quoted for infrastructure investment (Gratton et al., 2012). Moreover, Beijing has also seen a programme of upgrading in general both before and after the games with transport, water treatment and the provision of green spaces being notable winners (BOCOG, 2007).

While Preuss and Messing (2002) pertain that worldwide exposure cannot be entirely controlled by the event organisers, there is little doubt that the Beijing Games had a significant impact on China's image to the rest of the world. The *China Daily* (2008) reported that almost one-third of the world's population watched the Games on television and nearly 6 million people visited the IOC website although these figures have not been corroborated.

Mega-events can generate pride for the population of the host city and country (Bull & Lovell, 2007; Ohmann, Jones, & Wilkes, 2006). In China the Olympics was deliberately used to increase the confidence and self-esteem of the Chinese people. The intangible legacies such as sporting success (China topping the medal table – which links to the seventh factor of elite sport legacy), psychological (losing out to Sydney to host the 2000 Olympics) and the political (a poll showing that 94% of the population supported the bid) are all vital in establishing national pride, self-esteem and confidence (Preuss, 2007). These legacies need to be evaluated over time (Preuss, 2007). Increasing the intangible

psychological value, including that of civic pride and national unity, as Kim and Petrick (2005) explain, is another benefit of a mega-event. It strengthens cultural values and traditions.

Major events require the close cooperation between the international sports federations, the national sports federation, the local organising committee, politicians and the media. The networks created through the interactions of these bodies can lead to a lasting legacy from the event (Gratton et al., 2012). Owing to the scale and multi-year preparation and organisation needed, the Beijing Olympics was able to promote international exchange in politics, culture, economics and sport and helped to build networks across the world. *Xinhuanet* (2008) reported that over 550 Chinese schools conducted sport and educational exchanges with international counterparts.

Mega-events can of course produce negative legacies such as tax increases and prevalence of price inflation (Deccio & Baloglu, 2002). They can create societal problems such as congestion, increased crime (Hall & Selwood, 1989) and anti-social behaviour (Wann, Hunter, Ryan, & Wright, 2001), hooliganism (Barker, 2004), unruly behaviour (Getz, 2005) and crowding out effects (French & Disher, 1997). Barker, Page, and Meyer (2002) even found that areas outside the main event location can be at even greater risk of increased crime due to the redeployment of security resources to the event district.

Inadequate infrastructure, poor facilities and improper practices can also be realised with a key focus on games-related facilities. This can damage the image of a host community and diminish the attractiveness of cities nearby (Ritchie, 1984). Tosun (2002) raises concerns about clashes in cultural values between hosts and tourists while others have focussed on issues relating to pollution, poor physical environments, loss of amenities and the destruction of historical resources and cultural monuments (Qi, Gibson, & Zhang, 2009).

The positive and negative legacies here are wide and varied. However, given the rationale provided by Deccio and Baloglu (2002) that mega-events are of national and international importance it is essential that the perceptions of these legacies is more empirically understood, particularly by those in 'peripheral communities'. The understanding of non-host resident perceptions of these legacies will serve to confirm or not if any of the evidence provided is recognised by the non-host community long after the games.

Theoretical framework

In order to gain an understanding of the non-host residents' attitudes towards these perceived legacies, social exchange theory has been used as an appropriate theoretical base. This theory has served as an appropriate and effective foundation for studying residents' perceptions of tourism (see Ap, 1992; Bryant & Napier, 1981; Deccio & Baloglu, 2002; Jurowski, 1994; Jurowski, Uysal, & Williams, 1997; Karadakis & Kaplanidou, 2012; Ma, Ma, Wu, & Rotherham, 2013; Perdue, Long & Allen, 1990; Perdue, Long, & Kang, 1999). It is a theory which contends that an individual or group will be happy to become involved in an exchange with another party if the individual or group thinks that there will be some kind of derived benefit from the exchange (Gursoy & Kendall, 2006). The key benefit and indeed relevance of using social exchange theory are in its ability to explain positive and negative attitudes and investigate exchanges at an individual or group level (Ap, 1992).

Fredline (2004) is clear on the fact that residents, who benefit from event tourism, whether that is through employment, increased business revenue and so on, may have a more favourable perception of an event than those who do not. Moreover, if a resident can find a tangible experience that they can link to the event, participation in physical activity at a local recreational facility for example, they will also view the event more positively. Social representation theory has been used as an alternative framework to understand resident attitude towards an event, essentially suggesting that residents have an idea of how tourism underpins their perception of impacts which is influenced by direct experiences, social interaction and other externalities such as the media (Moscovici, 1981; Pearce, Moscardo, & Ross, 1996).

Notwithstanding this counter position the use of social exchange theory in the context of the Olympic Games at least suggests that resident attitudes towards the performance or the expected performance of legacies can be explained by the exchange of benefits that residents will directly receive as a consequence of hosting the event (Waitt, 2003). Resident interaction with information, as Fredline (2006) indicates, simultaneously informs their representations of tourism.

Throughout this review it is clear that impact and perception studies maintain a focus on asking respondents to indicate their level of agreement or disagreement with statements that explore impacts on their community. They routinely omit questions which link these impacts with influences on their own quality of life. Consequently, the study replicates, in part, Jurowski's (1994) model to explore spill over effects (i.e. those effects experienced by non-host city residents) to understand the non-host resident perception and experience of the Beijing Olympic Games.

Research questions

1. What is the legacy of the Beijing Olympics perceived by non-host residents?
2. What is the impact of perceived legacy on attitude towards the hosting of the Olympic Games?

Methodology

Development of the scale of Olympic legacy (SOL)

Adopting scale development techniques as described by Churchill (1979), the SOL was formulated through the following three phases:

- (1) item generation through an extensive review of literature;
- (2) conducting a test of content validity through a panel of experts; and
- (3) conducting a pilot study to examine measurement properties.

First, mainly drawing on Preuss's (2007) and Agha et al.'s (2012) work, a list of items was generated for eight dimensions of Olympic legacy, i.e. infrastructure, knowledge and skills, national image, networks, psychic income and social capital, tourism, cultural goods and sport legacy. Second, the items were sent to a panel consisting of three sport management professors for review and discussion. The panel suggested that an additional dimension of environmental and green legacy should be added giving 'green' is one of the most important themes of the Beijing Games. With revision, rewording and changes from above steps, the final legacy instrument contained 44 items. The items were

measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To test reliability of each item in the suggested dimensions, a pilot study was conducted by involving a non-random sample of 70 undergraduate students who were enrolled in sport management and sport journalism courses in Shanghai. The reliability of each item was assessed using Cronbach's alpha coefficients, means, standard deviations and Cronbach's alpha if-item-deleted statistics. The nine alpha scores ranged between 0.82 and 0.89 indicating that the scale items in the specified factors were internally consistent. As a result, all 44 items were retained along nine dimensions.

The questionnaire for the study consisted of questions divided into the following categories: demographic questions, questions relating to the perceived legacy of Beijing Games using the above-developed SOL, questions regarding attitude.

The demographic background section included gender and age. The attitude towards Beijing Games was measured with one five-point Likert item asking participants about whether they are still in support of the Games.

An empirical survey study was conducted in which data were collected from residents of Shanghai between 27 December 2012 and 10 January 2013. It can be noted here that Shanghai residents were chosen for convenience purposes including access to the population and the resource required for surveying respondents. Five trained college students were assigned to various public places (e.g., shopping malls, retail outlets, public parks and college campuses) in Shanghai to collect data through self-completion structured questionnaires. Data were collected at each site during different times of the day and different days of the week. Respondents were intercepted and a filter question was used to identify local residents. Participants who agreed to complete the questionnaire were thanked and offered a small souvenir. On average, the questionnaire took 7 minutes to complete. In total 468 questionnaires were distributed and collected, with 13 incomplete and hence dropped, resulting in 455 useable questionnaires for further analysis.

Data analysis

Procedures in SPSS 15.0 were utilised to analyse the perceived Olympic legacy through calculation of descriptive statistics, exploratory factor analysis (EFA), one sample *t* test and regression analysis.

Results

General profile of respondents

The general profile of respondents can be seen in [Table 1](#), but 50.3% were male and 49.7% were female and the most represented age group was 26–35 years (25.1%). It showed that 97.8% of respondents had watched live coverage of the Beijing 2008 Olympics, whereas 2.2% had not.

Factor analysis

To examine the dimensions underlying the perceived Olympic legacy, a principal component factor analysis with varimax rotation was undertaken. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.943, Bartlett's Test of Sphericity (BTS) was significant ($p < .001$) indicating the sample was appropriate for a factor analysis (George & Mallery, 2007). During several steps, a total of nine items were eliminated because

Table 1. Demographic profile of the residents.

Socio-demographic variables	%
<i>Gender</i>	
Male	50.3
Female	49.7
Total	100
<i>Age</i>	
18–25	23.5
26–35	25.1
36–45	23.3
46–55	19.6
56 and over	8.6
Total	100
TV audience of Beijing Games	97.8

they did not meet the minimum 0.40 factor loading criterion or they double loaded on more than one factor. The factor analysis was then repeated with the remaining 35 items.

The factor loading matrix for the final solution is presented in Table 2. A total of 35 items were loaded on the seven factors which had eigenvalues greater than one. These seven factors explained 64% of the variance. The seven factors were titled 'Psychic income and social capital' (eight items), 'Infrastructure and skills development' (seven items), 'Networks and co-operation' (six items), 'Environment' (four items), 'Tourism and economics' (four items), 'Sport and health' (three items) and 'Identity and culture' (three items).

Perceived legacy of hosting Olympic Games

A sample test was conducted to reflect the levels of perceived legacy on different dimensions. Table 3 shows that all factors are significantly higher than the point of indifference even years after the Games with factor 7 ('Identity and culture') ranking 1st, followed by factors 1, 3, 2, 6, 5, 4, respectively. Score for factor 4 ('Environment') was the lowest.

Effects of perceived legacy on residents support for the Games

All seven destination image factors were entered into a multiple regression analysis to predict attitude towards the 2008 Beijing Olympics. The results (Table 4) revealed that five out of the seven factors were significantly ($R^2 = .332$; $F = 44.535$; $p < 0.001$) predictive of attitude towards the 2008 Beijing Olympics with a total of 33.2% variance explained. Factor 4 ('Environment') and factor 6 ('Sport and health') did not affect attitude.

Discussion

Using the 2008 Beijing Olympic Games as an example, the main purpose of this study was to investigate the Olympic legacy as perceived by non-host city residents. In this case residents were from the city of Shanghai. Moreover, this paper also sought to determine whether perceived legacy would affect residents' attitude towards the Games. A study of

Table 2. Factor structure and impact variables.

Factor labels and items	1	2	3	4	5	6	7	Commonalities
<i>Factor 1 – Psychic income and social capital</i>								
(11) Olympic Games demonstrated positive national image	.540							.556
(15) Olympics demonstrated China's economic capability	.554							.528
(16) Olympic Games showcased friendliness and hospitality of Chinese people	.667							.566
(17) Olympic Games promoted social cohesion	.630							.641
(18) Olympic Games promoted volunteerism	.693							.618
(19) Olympic Games promoted national unity	.765							.715
(20) Olympics promoted Chinese identity	.698							.718
(21) Olympics promoted civic pride	.606							.599
<i>Factor 2 – Infrastructure and skills development</i>								
(1) Olympic Games improved urban infrastructure		.706						.622
(2) Olympic Games left new tourist attractions		.760						.625
(3) Olympic Games improved transportation infrastructure		.566						.466
(4) Olympic Games left new sport and leisure facilities.		.707						.552
(5) Olympics improved skills and knowledge of hosting sport mega-events		.668						.565
(6) Olympic Games promoted human resources development		.504						.476
(9) Olympic Games promoted the development of information technology		.463						.505
<i>Factor 3 – Networks and cooperation</i>								
(23) Olympics promoted international exchange between China and the world			.620					.664
(24) Olympics promoted international friendship			.708					.722
(25) Olympics promoted international cooperation			.780					.759
(26) Olympics helped to establish link and network with international sport organizations			.735					.682
(27) Olympics promoted diplomacy			.576					.566
(28) Olympics promoted internationalization of Chinese traditional physical culture			.463					.544

Table 2 (Continued)

Factor labels and items	1	2	3	4	5	6	7	Commonalities
<i>Factor 4 – Environment</i>								
(41) Olympics improved awareness of environment protection				.674				.661
(42) Olympics promoted green technology				.710				.740
(43) Olympics boosted government's investment in environment protection				.738				.708
(44) Olympics promoted a green life style				.776				.742
<i>Factor 5 – Tourism and economics</i>								
(33) Olympics promoted reform of China's sport management system					.625			.587
(34) Olympics upgraded tourism environment					.722			.730
(35) Olympics optimized industry structure					.728			.727
(36) Olympics promoted tourism					.570			.564
<i>Factor 6 – Sport and health</i>								
(29) Olympics raised health awareness						.674		.713
(30) Olympics promoted sports participation						.740		.766
(31) Olympics promoted construction of sports facilities						.637		.629
<i>Factor 7 – Identity and culture</i>								
(38) Olympics promoted Olympic spirit							.500	.577
(39) Olympics showcased Chinese long and rich history							.771	.799
(40) Olympics showcased traditional Chinese culture							.735	.742
Rotation sums of squared loadings	4.665	3.805	3.449	3.224	2.789	2.362	2.078	
Cronbach's alpha	.895	.824	.861	.867	.820	.834	.806	
Variance explained (%)	13.329	10.873	9.855	9.212	7.969	6.749	5.937	
Cumulative variance explained	13.329	24.201	34.057	43.268	51.237	57.986	63.924	

Table 3. One-sample statistics for the impact dimensions and the point of indifference.

Factors	Weighted mean score	SD	<i>t</i> test	Sig. (two-tailed)	Mean difference
(1) Psychic income and social capital	3.89	.650	29.200	.000	.890
(2) Infrastructure and skills development	3.86	.627	29.389	.000	.864
(3) Networks and cooperation	3.86	.659	28.043	.000	.866
(4) Environment	3.49	.807	13.195	.000	.499
(5) Tourism and economics	3.50	.774	13.834	.000	.502
(6) Sport and health	3.55	.799	14.779	.000	.554
(7) Identity and culture	3.90	.741	25.875	.000	.899

Note: point of indifference = 3.

Table 4. Regression analysis of perceived legacy factors on support of 2008 Beijing Olympics.

Variable	<i>B</i>	SD	β	<i>T</i>	Sig.
Constant	3.905	.033		116.930	.000
Factor 2 Infrastructure and skills development	.297	.033	.343	8.886	.000
Factor 1 Psychic income and social Capital	.268	.033	.309	8.000	.000
Factor 3 Networks and cooperation	.240	.033	.277	7.182	.000
Factor 5 Tourism and economics	.143	.033	.165	4.286	.000
Factor 7 Identity and culture	.104	.033	.121	3.124	.002

Note: Dependent variable: support of Beijing Olympics; $R^2 = .332$; $F = 44.535$; $p = .000$.

this nature can help measure the magnitude of legacy and provide lessons to event planners to build on success and future bidding activity (Guala & Turco, 2009).

The results showed that respondents perceived a wide range of legacy impacts for the 2008 Olympic Games. In rank order i.e. the most significant first, these impacts were: 'Identity and culture', 'Psychic income and social capital', 'Networks and cooperation', 'Infrastructure and skills development', 'Sport and health', 'Tourism and economics' and 'Environment'. It is suggested that in the long run, the intangible benefits such as emotional benefit and psychic income would stand out and even outweigh the economic benefits and infrastructure development. Participants appeared ambivalent about the promotion of China's international image and status.

In many ways these findings are consistent with the existing literature and justify the inclusion of the environmental impact dimension. During the past decade there has been growing public concern about environmental pollution which led the IOC to incorporate the environment impact as the third sphere of Olympic Games Global Impact project launched in 2000 (Preuss, 2007). It is therefore important to note that the non-host residents participating in this study saw the Olympics in Beijing as having a positive impact on the general awareness of environmental protection, the use and understanding of green technology, a clear increase in the government's investment in environmental protection and the promotion of a green life style. This again demonstrates the importance of both longer-term benefits of hosting mega-events but also the long-term planning by local and national government that can be leveraged from events such as the Olympic Games. However, while the findings in this study confirm that the broad dimensions follow previous studies, the rank order is somewhat different. Andereck, Valentine, Vogt,

and Knopf (2007) found that the environmental category had the highest importance score for quality of life, a finding further proven by Karadakis and Kaplanidou (2012). Shanghai residents ranked green legacies last, perhaps unsurprising given that the environment continuously deteriorated after 2008 and even worse air quality in Beijing was reported to reach the 'worst on record' in January 2013 (Reuters, 2013).

The findings are also consistent with Lee et al. (2012) where it was suggested that travel and tourism was expected to rise to record levels, new facilities were to be built, dilapidated houses and neighbourhoods smartened up, subway lines constructed, a major investment in urban regeneration would begin (including a new airport terminal, subway line and business building programme) and a new water treatment plant with water and air source heat pump systems installed to reduce air pollution and water shortages (Lee et al., 2012). The perceptions by the residents of Shanghai indicated that these were indeed perceived legacy benefits to China. The government initiated programme to change behaviour and to modernise Beijing also appears to have been recognised by respondents to the survey.

The seven legacy benefits that non-host city residents agree with are consistent with those legacy benefits which were explored in the literature review, most notably those identified by Karadakis and Kaplanidou (2010). Based on the amount of literature, urban regeneration benefits and an improvement in skills and etiquette make intuitive sense and may have been experienced, especially by those who are from destinations that are hosting mega-events frequently, such as Shanghai. Indeed, the findings in this study replicate those found by other authors including Roche (1992), Dobson and Gratton (1995) and Dobson (2000), at least for the perception of urban regeneration/infrastructure benefit. The finding that the residents in Shanghai identified economic growth as a legacy confirms those found in previous research by Karadakis and Kaplanidou (2012), where economic impacts were deemed the second most important factor. It might be argued that Shanghai residents saw tangible economic benefit from the games to a less extent (the second least in ranking order) given the city's distance from Beijing hence the legacy score was less critical. While the perception of the games was that infrastructure had been improved it was not clear that such development had led to economic prosperity.

Most notably the findings in this paper, when compared directly to those of Karadakis and Kaplanidou (2010), strongly demonstrate that on all of the dimensions considered the level of perceived legacy was significantly above the mid-point (see Table 3). In contrast, Karadakis and Kaplanidou's (2010) findings demonstrated on many dimensions values were below the mid-point. This means that on all factors Shanghai residents agree that these dimensions are important and that an impact has been experienced. One possible assumption for this finding could be the different economic and cultural backgrounds which mean that the Chinese population are in 2012 more positive about hosting mega-events than people in the West.

A key finding in this study was that non-host residents perceived that the Olympic Games had showcased the friendliness of the Chinese people and promoted civic pride, national identity and volunteerism – key components of successful games when viewed in the long term. It is this type of social development that can act as a catalyst in developing networks and culture (Crompton, 2001; Liu & Gratton, 2010). The 2008 Olympics was China's shop window to demonstrate to the world that it was a rising power (Lee et al., 2012) and that it could interface well with the rest of the world. An estimated 40 million non-Chinese learning the language worldwide in 2008, which Li (2008) expected to rise beyond 100 million post games was a sign that China was indeed an

emerging power. There is also evidence that points to non-host city residents being more aware of their own physical health and well-being as a direct result of hosting the games (though no evidence in this paper that any such benefit actually occurred). Shanghai residents also felt that the Olympics in Beijing had promoted both sports participation and the construction of sport facilities. This points towards a requirement of further study given the focus on physical activity, health and participation in sport which was central to the successful bid for the London 2012 Olympic Games.

However, a number of the intended legacies do not appear to have been realised. Economy and Segal (2008), for example, indicated that the Games would be an advert to the rest of the world that China was ready to modernise, a finding that is not reflected strongly in this study. While events like these may increase tourism by attracting sports fans, the objectives around demonstrating a positive image so that the world would better understand China and the Chinese culture have not been realised as they might have been, although residents did confirm that there was a marginal improvement in the understanding of Chinese culture. Though it has long been pointed out that events can positively and negatively affect the image of the host city (Chalip et al., 2003), the majority of existing literature focuses on the positive impact of sports events on tourism (e.g. Kaplanidou & Vogt, 2007; Kaplanidou, 2009; Smith, 2005; Smith, 2006). Indeed Smith (2005, 2006) suggested that in general sport events appear to have encouraged positive connotations amongst potential tourists, including modernity, progress and vitality. The image of Beijing and China, however, is not a perceived legacy of hosting the Games by Shanghai residents. While much literature focuses on the ability of a host city to effectively re-image itself as a consequence of hosting the games, the evidence here is that Beijing did not achieve that. Notwithstanding this finding, it should be noted that disruptions to the torch relay and the sale of tainted baby formula which led to the deaths of a number of children led to a difficult public relations problem. These concerns in addition to the federal and city government action plans for the Olympics caused the wider population to limit their expectations (Lee et al., 2012), something that the results of this study confirm.

While the planned legacy of infrastructure, elite sport legacy and networks and culture (Gratton et al., 2012) are key, the longer-term planned and unplanned consequences are far reaching (Preuss, 2007). For residents of Shanghai the study indicates a significant positive legacy of improved facilities, tourist attractions, transportation alongside more significant social, political and cultural benefits (Girginov & Parry, 2005) but not a legacy that has helped to shift the international image of the country in a positive direction. Non-host city residents perceived legacy which showcased Chinese history, traditional culture and social cohesion all of which point to a longer-term legacy and strategic plan.

In the post 9/11 era, reports about the terrorist attacks targeting big cities in general, such as 2005 London underground bombing and the Olympic Games-related attack in particular such as the 1996 Atlanta Games bombing, have led to heightened awareness of association between security issues and mega-sporting events. However, the general perception of residents in Shanghai was that there was very little improvement in the capability of China to deal with terrorist-related activity. The fact that this was not identified by respondents as a legacy is logical given that there were no reported incidents of a terrorist nature at the games.

Finally it is important to acknowledge the use of social exchange theory in this paper. The higher than mid-point scores across all dimensions support the dynamic nature of this theoretical framework insofar as respondents all had the opportunity to experience the

games and the impacts associated with it. Much literature points to the fact that evaluations are not permanent and that over time residents reassess perceived benefits and costs (Waite, 2003). In this paper residents may have been strongly in agreement with each dimension during game time and that perception may have now been reassessed. Notwithstanding such assumption the findings here clearly demonstrate that there is a good level of agreement across most factors four years post games.

In addition, social exchange theory suggests that perception of residents should predict attitude. The paper examined the predictability of perceived Olympic legacy on attitude towards the hosting of the Games, and results revealed that 33.2% variance in support of the Games was explained by five out of the seven factors of Olympic legacy. This indicates that the more legacy residents perceive, the more likely they will support the hosting of the Games. This finding further highlights the importance of Olympic legacy leverage, and it is also consistent in general with existing literature on social exchange theory suggesting that variations of attitude could be explained by perceived benefits. (Ap, 1992; Gursoy & Kendall, 2006; Jurovski, 1994). However, the fact that two out of the seven dimensions of legacy did not affect attitude also warrants further examination from future studies.

Practical implications

These findings supported many of the positive legacies that have been documented to have been linked directly to hosting Olympic Games. It points to the possible danger of under-estimating the effort required by event planners to shift perceptions of a country's image, particularly when that image has a chequered history in western literature. It does however point to the clear benefits to a host city with regard to identity and culture, emotions, and networks and cooperation, skill development and, to a certain extent, environment and economic and tourism benefits. It would appear that cities that have already secured the right to host mega-sporting events need to do more to communicate to both national and international audiences to capitalise on the good news stories particularly in the developing world.

As Karadakis and Kaplanidou (2012) point out, by continuing research of this nature, we can gain a more in depth understanding of how legacies can be evaluated which will provide evidence for event planners, the host nations and cities and the mega-event rights holders so they can focus their resources into improving legacy programmes for host and non-host city residents. By examining this information several years after the event has drawn to a close we can provide organising committees with the information that they require to leverage long-term and lasting legacies for their events. These impacts should be considered as integral to the event plan and bid documentation. In the case of Beijing, non-host city residents considered 'Identity and culture', 'Psychic income and social capital', 'Networks and cooperation' as the most important factors. By focusing on such impacts event organisers can gain more support when considering future bid activity in other cities to enhance their own event portfolios. As Fredline (2005) confirms, event planners need to accurately communicate positive impacts so that perceived positive impact is experienced and that the event is considered a success. The lessons for China are clear and are consistent with other literature from Western Europe. The issues are similar and the responses need to be managed effectively.

Limitations

Ostensibly there are two main limitations to this study. First, there was no baseline data to perform a longitudinal study. Had the survey been conducted during event time the results could have been compared to a data set in 2008 to understand the direction of travel of respondents, i.e. to see if their perceptions had changed over time. This would also have supported the usefulness of social exchange theory more robustly with empirical data. However, longitudinal studies tend to have problems with mortality and attrition given that you need to question the same respondents a second time. Secondly and finally, this study questioned respondents in the Chinese city of Shanghai, a city whose mega-event programme is well advanced and where respondents may have experienced positive (and negative) impacts from other events, thus influencing the findings of this programme of research.

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