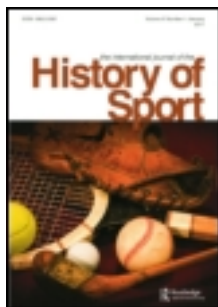


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### Maximizing Olympic Impacts by Building Up Legacies

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# Maximizing Olympic Impacts by Building Up Legacies

Chris Gratton and Holger Preuss

*This contribution adds to the controversial discussion of the investment of scarce public resources in mega sport events such as the Olympic Games. The positive, or negative, legacy of mega sport events will be considered. A definition of legacy will be given, how legacy might be measured is discussed and the key elements that make up a legacy are identified. Examples are taken from recent Olympic Games and other mega sports events such as the Manchester Commonwealth Games in 2002.*

## Introduction

The Olympic Games are expensive for host cities and cause substantial deficits for cities and countries (in particular the Olympics in Montreal in 1976 and in Athens in 2004). Today the International Olympic Committee (IOC) controls the finances of the operation of the event, but there is still the problem of how to finance the infrastructure needed for the event. Host cities often invest in new infrastructure that is oversized or not needed in the long term. Since 2004, many Olympic facilities built for the 2004 Olympics in Athens have remained unused.

One of the main interests of the IOC is a positive 'legacy' of the event. There are three reasons for this. First, a positive legacy avoids the public in the host city/nation blaming the IOC and provides evidence as to why the event has been good for the host city/nation. Second, it justifies the use of scarce public resources for permanent or temporary event infrastructure. Third, a positive legacy motivates other cities/nations to bid for future events. High demand increases the power of the IOC and secures the continuance of the Olympic Games.

This contribution adds to the controversial discussion of the investment of scarce public resources in mega-sport events such as the Olympic Games. The positive, or

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negative, legacy of mega-sport events has to be considered when discussing the opportunity costs of resources committed to an event. This contribution provides a definition of legacy and then goes on to discuss how legacy might be measured and what are the key elements that make up a legacy.

### Definition of 'Legacy' and Literature Review

In the literature, an immense variety of so-called legacies from sport events can be found. Surprisingly, there is no definition of 'legacy' available. 'Event legacy' – as used by the IOC – captures the value of sport facilities and public improvements that are turned over to communities or sports organizations after the Olympic Games. The legacy includes a 'legacy fund' for ongoing operations of sports facilities and venues. This legacy fund is an important feature because the required event facilities, for example the bobsleigh/luge tracks constructed for Winter Olympics, need ongoing operating subsidies. [1]

However, this definition seems to be narrow in comparison to the various characteristics of 'legacy' mentioned in the literature. Examples range from commonly recognized aspects (urban planning, sport infrastructure) to less recognized intangible legacies, such as urban revival, enhanced international reputation, increased tourism, improved public welfare, additional employment, more local business opportunities, better corporate relocation, chances for city marketing, renewed community spirit, better interregional cooperation, production of ideas, production of cultural values, popular memory, education, experience and additional know-how. These positive legacies stand in contrast to negative legacies such as debts from construction, high opportunity costs, infrastructure that is not needed after the event, temporary crowding out, loss of tourists that would have visited the host city if the event were not taking place, property rental increases, and socially unjust displacement and redistributions. [2]

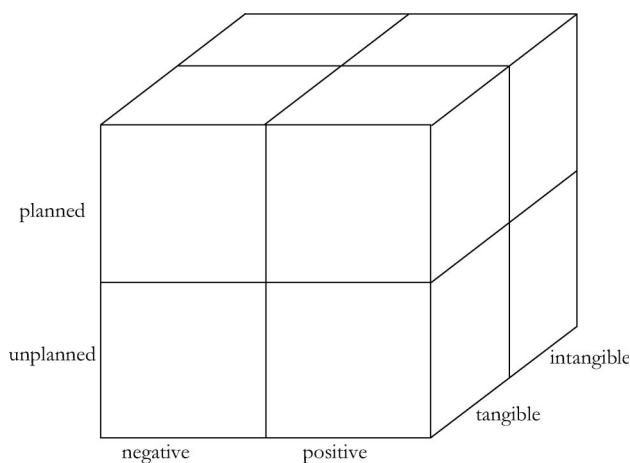
In 2000, the IOC launched a project called the 'Olympic Games Global Impact' (OGGI). This project was initiated in order to improve the evaluation of the overall impacts of the Olympic Games on the host city, its environment and its citizens, as well as to propose a consistent methodology to capture the overall effects of hosting the games. The OGGI project covers an 11-year period, starting with the bidding stage right through the hosting of the event itself to 2 years after the event being held. There are three categories of indicators to measure these effects: economic, social and environmental. [3] The main problem, however, with the OGGI project is that it ends 2 years after the event, which is much too soon to measure the legacy of the event.

Aware of the variety and importance of legacy, the IOC initiated a congress on 'The Legacy of the Olympic Games: 1984–2000' in 2002. It attempted to define legacy, but the participants 'found that there are several meanings of the concept, and some of the contributions have highlighted the convenience of using other expressions and concepts that can mean different things in different languages and cultures'. [4] Cashman adds to this hesitancy by stating that the 'word legacy, however, is elusive,

problematic and even a dangerous word for a number of reasons. [5] When the term is used by organising committees, it is assumed to be entirely positive, there being no such thing as negative legacy when used in this context. Secondly, it is usually believed that legacy benefits flow to a community at the end of the Games as a matter of course .... Thirdly, legacy is often assumed to be self-evident, so that there is no need to define precisely what it is' (p. 15). [6] Cashman collected a variety of evidence about legacies. [7] He identified six fields of legacies: economics; infrastructure; information and education; public life, politics and culture; sport; symbols, memory and history.

However, this rather qualitative definition needs a broader perspective. A general definition of legacy should be independent of qualitative examples or IOC suggestions. Three legacy dimensions can be identified: first, the degree of planned structure; second, the degree of positive structure; third, the degree of quantifiable structure. A definition considering these dimensions is as follows: 'Legacy is planned and unplanned, positive and negative, intangible and tangible structures created through a sport event that remain after the event.' In the following discussion, the word 'structure' is used in this context.

The three dimensions of legacy form a 'legacy cube' (Figure 1). The legacy cube has eight smaller cubes. A holistic evaluation of a mega-sport event would be necessary to identify all legacies. In reality, most pre-event studies and bid committees focus on only one subcube (planned, positive, tangible). [8] Many of the pre-event feasibility and impact studies that consider legacies are potentially biased, because the ambition of those commissioning the studies is to favour the hosting of the event, and therefore they emphasize only this particular subcube. This issue is constantly criticized by authors investigating the economic effects of hosting major sport events. [9] Kasimati analysed all impact studies of the Summer Olympics from 1984 to 2004 and found, in each case, that the studies were done prior to the games, were not based



**Figure 1** Legacy cube.

on primary data, and were, in general, commissioned by proponents of the games. [10] He found that the economic impacts were likely to be inflated, since the studies did not take into account supply-side constraints such as investment crowding out, price increases due to resource scarcity, and the displacement of tourists who would have been in the host city had the Olympics not been held there.

### **The Measurement of Event Legacies**

The measurement of a legacy should start with the changes events create. An economic event impact is strong, but short-term and only on the demand side. Tourist and operational expenditures, investments in temporary structures, volunteer and management activity, etc., peak for a short time. [11] However, the induced consumption-based economic activity constantly decreases over time due to taxes, savings and imports. In the long run, both the event demands and the leakage of money influx most likely return to the equilibrium income of the pre-event level. In other words, the huge figures of economic impacts are not an event legacy.

Long-term economic growth requires a constant influx of autonomous money. In terms of economic growth related to events, this can better be reached if the event has changed the host city's structure – in other words, its supply side. It should be the aim of politicians to initiate structural changes that improve the 'location factors', which are the basis of new post-event impacts. Chalip emphasized the necessity to leverage the post-event impact to justify public investment in infrastructure. [12] Ritchie goes further and talks about the need to 'embed' an event in broader processes of the city development. [13] Both authors stress planning the legacy before an event is staged. Faber Maunsell suggests that there is a need to start earlier: 'Commitment and funding for legacy need to be in place when planning the event' (p. 55). [14]

Studies of mega-sport events often measure the economic impact or those impacts that are related to economics. These can be tourism, [15] employment [16] and infrastructure development. [17] Most studies also mention environmental impacts [18] and social impacts, [19] but in a qualitative and general way, often based on experiences of past events. This can be explained by the fact that the majority of studies are written prior to the event, and the legacies cannot be measured or be based on scientific evidence.

### **Event Structures and Their Effect on the Host City**

Each mega-sport event requires specific structures. All event structures that exist after the event change the quality of the host city in a positive or negative way. Each city has different quality factors that make the city more or less attractive for living in, for tourists, for industry, or for hosting future sport events.

Today cities are in global competition to attract economic activity. [20] Where the event legacy in these terms is significant, the host city is in a better position to face

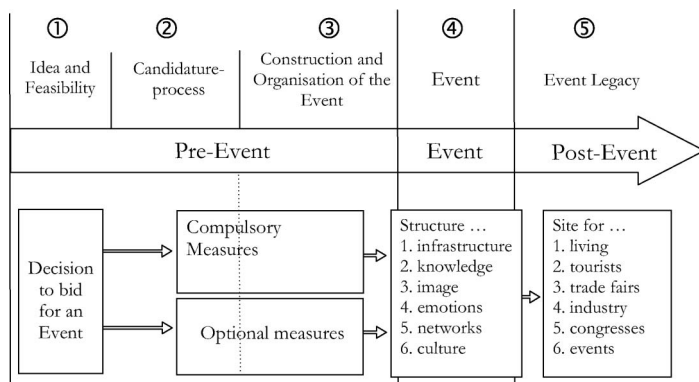
this global competition. The possibility of this happening is enhanced by strategically embedding the event in the broader processes of development. [21]

The strategy of building up an event legacy starts with the decision to bid for a specific event (1) (Figure 2). Mega-sport events differ in the structures they require and cities differ in the structures they can provide. The strategy focuses on the additional structures an event creates and the long-term need for these structures. During the candidature process, (2) some required structures ('compulsory measures') as well as some 'optional measures' will be provided. By means of the 'optional measures', the city aims to be strategically best positioned in the bid competition. [22] Therefore, these measures may not be sustainable. During the preparation for the event (3) the compulsory structures are set up. 'Optional measures' can be embedded to improve the competitive position of the host city to attract more economic activity in the future. During the event (4), all 'event structures' are present. After the event (5), some 'event structures' disappear or are reduced in size, but others exist for a long time after the event. Six 'event structures' are usually preserved after an event.

### Six 'Event Structures'

#### Infrastructure

Infrastructure obviously means the sport infrastructure for competition and training, but also the general infrastructure of a city such as airports, roads, telecommunication, hotels, housing (athletes, media and officials), entertainment facilities, fair grounds, parks, etc. All infrastructure left after an event should fit into the city's development. Today temporary constructions can avoid negative legacies such as oversized and extraneous facilities. Examples are a movable velodrome (Olympics, Atlanta 1996), a temporary 50-m indoor pool in a fair hall (FINA World Cup,



**Figure 2** Process of building up planned event legacy.

Fukuoka 2001) or an athletic stadium transformed into a football stadium (Commonwealth Games, Manchester 2002). Szymanski supports this idea. He claims that all spending should be directed at the most productive activities (p. 3). [23]

The Commonwealth Games in Manchester 2002, for example, provided world-class sporting facilities, including the City of Manchester Stadium. Time pressure, however, accelerated investment in major transport links, a new rail station, ground interchange at the airport, quality bus corridors, etc. [24] Germany invested 1.5bn euros in stadiums for the FIFA-Football World Cup 2006. [25] The old arenas, most dating from the last German World Cup in 1974, did not meet the modern requirements for marketing and entertainment. Finally, the upgrade of the Athens infrastructure to stage the Olympic Games 2004 cost more than 5bn euros. While some facilities still remain unused and many are oversized, some general infrastructure (airport, airport link, metro, the revitalization of the coastal line and the old airport area) will provide great value for the further economic growth of Athens.

### *Knowledge, Skill-Development and Education*

The host population gains knowledge and skills from staging a mega-sport event. Employees and volunteers achieve skills and knowledge in event organization, human resource management, security, hospitality, service, etc. Spectators and volunteers learn to use public transportation and are acquainted with environmental projects. They also gain greater knowledge about the history of their city and country, culture and other issues.

For example, almost 50% of 10,000 volunteers recruited for the Commonwealth Games in Manchester 2002 felt that they had acquired new skills and capabilities through their experience, 18% believed that being a volunteer had improved their chances of employment, and 46% agreed that being a volunteer had enhanced their personal development. [26] An example of a negative effect is the policy of global sponsors of mega-sport events who try to establish brand loyalty at the youngest age possible. [27] Events offer them opportunities for youth marketing. In regards to sponsors from Sydney 2000, Lenskyj wrote: 'Their cynical exploitation of "Olympic spirit" rhetoric and pseudo-educational initiatives were key components of the campaign to reach children and youth' (p. 126). [28] Corporations investing money in educational programmes certainly aim to promote the Olympic idea, but also the Olympic industry, thereby socializing children to become 'global consumers' of their goods.

### *Image*

Mega-sport events have tremendous symbolic significance and form, and reposition or solidify the image of a city, region and country. Usually, events create a positive imagery, and the city and politicians can 'bask in [its] reflected glory'. [29] On the

other hand, the worldwide exposure of the event, the host city and its culture depends on the media representatives and cannot be entirely controlled by the organizers. [30] Negative incidences such as a bomb attack, hooligans, organizational shortcomings or just bad weather also influence the image of the host. Not only negative incidents, but also general bad attributes can be transported through a mega-event to millions of potential visitors, customers or business partners. Exaggerated nationalism or unfair spectator behaviour spoils hospitality, and poverty and crime create doubts about a potential tourism destination.

For example, one of the aims of hosting the FIFA-Football World Cup 2006 was to reposition the stereotype of Germans as 'conformist, time-dominated, serious'. [31] The organizers and government launched a hospitality concept including service of government resorts, location marketing for Germany, a cultural programme, and a service and friendliness campaign. [32] Another example is Qatar's hosting of the 2006 Asian Games in Doha. Ultimately, the country was trying to reposition its image and infrastructure to become the Arabic sport and entertainment centre. Mega-sport events are often used as a catalyst to transform a location into a tourist destination. This corporate-centre strategy requires the building of convention centres, sport facilities, museums, shopping malls, and entertainment and gambling complexes to reach economic growth by consumption-oriented economic development. [33]

### *Emotions*

Mega-sport events give politicians a common vision to gain international prestige, and citizens may become emotionally involved. The pride of hosting such an event creates local identification, vision and motivation. An example is the Olympic Games in Seoul 1988, which created a national perspective; a feeling of vitality, participation, and recognition; and an international perception of being modern and technologically up-to-date. [34] The Chinese were keen to demonstrate their increasing economic importance through the Olympics in 2008. [35]

Private industry is stimulated by the expected influx of money and a potentially positive post-event legacy. This may change the readiness to invest instead of saving funds. [36] 'The announcement of the event leads to a programme of anticipatory investment. Directly, or indirectly it is the catalyst for a number of 'piggy-back' events (which in turn promote further investment). And during the event itself, there is a boost to local demand. While all of these boost the local economy in the short term, the key to any long-term effects lies in whether and how these leave a permanent legacy in the infrastructure, or in industry competencies'. [37] There are several indications from Olympic Games that these anticipatory investments have taken place. Critically seen, some have created oversupply. [38]

Negative emotions may also be caused if new event facilities use the space of former workers' areas. Then citizens living there suffer from expropriation and relocation, but also from gentrification of their area, leading to a loss of their social environment. [39]



### *Networks*

International sport federations, media, politics, etc., need to cooperate in order to stage an event successfully. Their interaction creates networks. In general, events improve political networks, such as close partnership with the central government. In particular, the greater knowledge of sport, networks between politicians and sport federations, and the image of being a sport city increase the affiliation to sport. Grass-roots coaching programmes, facilities for schools, sport for all, and additional sport events may be the result.

For example, through the Olympics in Athens 2004, an international security network was established, which gave Greece a new standard of security in general. Manchester used the Commonwealth Games 2002 to form a basis for providing new business opportunities, utilizing the games as a promotional asset for trade and investment. [40]

### *Culture*

Mega-sport events produce cultural ideas, cultural identity and cultural products. Opening ceremonies especially include a cultural-artistic aspect that is a condensed display of the host country's culture. A positive cultural image, increased awareness, new infrastructure and additional tourist products, combined with the soft factor of better service quality, have a great potential to increase tourism in the long term. [41] Barcelona, for instance, used the Olympics to transform its infrastructure to become a 'cultural city'. [42] The cultural presentation educates the host population and forces them to address their history. For example, there was increased awareness of Aboriginal history in Australia during the 2000 Sydney Olympic Games, and increased understanding of Mormon traditions in the USA during the 2002 Salt Lake Olympic Winter Games. However, it is critical that the cultural awareness betters the situation of these minorities. Another example is 'the Spirit of Friendship Festival', which was launched for the Commonwealth Games 2002 and aimed to celebrate the Commonwealth, thus leaving a cultural legacy. 'It was a nationwide programme [and was ...] set out to communicate the visual and performing arts and cultural traditions of countries in the Commonwealth'. [43]

### **Case Study: Commonwealth Games Manchester 2002**

Although the Commonwealth Games are not on the scale of the Olympics, they are a multi-sport event that requires substantial infrastructure investment similar to the Olympic Games. The Commonwealth Games held in Manchester in 2002 involved an investment of £200 million in sporting venues in the city and a further £470 million investment in transport and other infrastructure. This was by far the largest investment related to the hosting of a specific sports event ever to be undertaken in Britain prior to the investment for the London Olympics in 2012. It was also the first

time in Britain that planning for the hosting of a major sports event was integrated within the strategic framework for the regeneration of the city, in particular East Manchester.

In 1999, 3 years before the games were held, the Commonwealth Games Opportunities and Legacy Partnership Board was established to manage the legacy of the games. Legacy activities were funded under the 2002 North West Economic and Social Single Regeneration Board Programme, which operated from 1999 to 2004. This was the first time in Britain that an ambitious legacy programme was designed around a major sports event. The objective was to ensure that the benefits of hosting the event would not disappear once the event was over, but rather that there would be a long-term permanent boost to the local economy of East Manchester.

Despite the long-term planning for the games and the legacy, there was one major omission: no economic impact study was carried out during the games in 2002, and so no primary data were available on the immediate economic benefit of the games. Cambridge Policy Consultants produced a pre-event estimate of the economic impact in April 2002 and then revised it in November 2003, [44] using secondary evidence available from the games period. They estimated that the games generated an additional 2,900 full-time equivalent (FTE) jobs in Manchester. However, without any visitor survey data available for the games themselves, there must be serious doubts as to the validity of such an estimate.

A further study of the benefits of the games was carried out for the North West Development Agency in 2004 by Faber Maunsell, in association with Vision Consulting and Roger Tym and Partners. [45] The study used secondary sources and interviews with key stakeholders. As part of the study, they measured employment change in East Manchester between 1999 and 2002, as revealed by the Annual Business Inquiry (ABI) data. This showed an increase of 1,450 jobs (including both part-time and full-time jobs) or a 4% increase over the 1999 level. However, these are annual data, and therefore it is difficult to isolate how much of this increase was due to the games. The distribution of the increase in construction (23% increase), distribution, hotels and restaurants (14% increase), and other services (24% increase) is consistent with the games having been the main generator of the increase in jobs. Moreover, out of the 210 new jobs in 'other services', 200 were in the 'recreational, cultural, and sporting' category, suggesting again a significant games effect. However, the gain of 1,450 new jobs, which included part-time jobs, is considerably lower than the 2,900 FTE jobs estimated by Cambridge Policy Consultants, although this figure relates to the effect on the whole of Manchester, not just East Manchester.

The net additional value of capital investment in the games was estimated by Faber Maunsell at £670m, of which £201m was for the sporting venues and £125m was for transport infrastructure. Other major investment included an Asda-Walmart superstore occupying 180,000 square feet and employing 760 FTE staff.

Since no visitor survey was carried out during the games, actual tourism indicators were difficult to obtain. Using annual tourism data from the UK Tourism Survey (UKTS) and the International Passenger Survey (IPS), Faber Maunsell indicated a

7.4% increase of overseas visitors to Greater Manchester in 2002 compared to 2000. [46] However, there was a 6.4% decrease in UK resident visitors to Greater Manchester over the same period and a 2.2% decrease in the number of nights overseas residents spent in Greater Manchester. Overall, though, there was a 21% increase in UK residents' expenditure and a 29% increase in overseas residents' expenditure in Greater Manchester in 2002 compared to 2000. Again, because these are annual figures, it is impossible to isolate the influence of the games on these figures, but it is reasonable to conclude that they were the most significant factor.

The Faber Maunsell study does not give a detailed media analysis of the games, indicating only that the opening and closing ceremonies had an 'estimated' worldwide audience of 1 billion. The Commonwealth Games are an unusual event in that they do get television coverage across most continents, but they are not a global event in the same way as the Olympics and the football World Cup are. There are key markets where there will be no coverage at all, such as the USA, the whole of the rest of Europe outside the British Isles, Japan and China. The event, therefore, is limited in the potential effect on the image and profile of the host city.

Some indication of the public profile benefits of the games is indicated by Manchester's moving up the European Cities Monitor from 19th in 2002 to 13th in 2003. The monitor, a measure of the best European cities in which to locate a business, is compiled by Cushman and Wakefield Healey and Baker. It is constructed from the views of Europe's 500 leading businesses on the top business locations in Europe and is used to indicate aspects affecting business location decisions. For Manchester, it is an indicator of an improvement in the city's image from a business perspective and an indicator of greater potential for inward investment.

Despite the lack of hard evidence on the economic impact of the Commonwealth Games on Manchester in 2002, there is enough evidence to indicate that East Manchester has benefited considerably. Manchester City now use the City of Manchester stadium as their home ground, and other sporting venues in East Manchester have become the English Institute of Sport and are used for the training of elite athletes. Since much of the funding for the new investment for the facilities came from the National Lottery or central government, this is a clear economic boost for the area. We will have to wait and see whether the legacy benefits are as great as were hoped for, but the indications are promising.

### Longer-term benefits of hosting major sport events

Although it is too early to assess the urban regeneration legacy benefits of Manchester 2002, it should be possible to assess the long-term benefits of events held 10 or 20 years ago. Unfortunately, there are few research studies that attempt to measure systematically such long-term benefits. Spilling found he could identify no long-term economic benefits for Lillehammer from hosting the Winter Olympics in 1994. [47] He concluded: 'If the main argument for hosting a mega-event like the Winter

Olympics is the long-term economic impacts it will generate, the Lillehammer experience quite clearly points to the conclusion that it is a waste of money.'

Spilling seems to question whether there can be any long-term effect for an area the size of Lillehammer, a city of 24,000 inhabitants situated 180 km north of Oslo. The two Winter Olympics prior to the Lillehammer games, in Calgary in 1988 and in Albertville in 1992, had been in larger regions, and there was more evidence of a continuing benefit several years after the games. In the case of Albertville, this was partly due to massive transport infrastructure investment that made access to the region by car substantially easier, although at a severe cost to the alpine environment. Certainly, there is little evidence to support the argument that the Winter Olympics leave a substantial long-term benefit.

There is some evidence, however, that the Summer Olympics do generate a legacy benefit. One example that is often quoted to support the argument that there are long-term benefits of hosting major sports events is the case of the Barcelona Olympics in 1992.

R. Sanahuja provided evidence on the longer-term economic benefits of hosting the Olympics in Barcelona in 1992. [48] The paper analysed the benefits to Barcelona in 2002, 10 years after hosting the games. Table 1 shows an almost 100% increase in hotel capacity, number of tourists, and number of overnight stays in 2001 compared to the pre-games position in 1990. Average room occupancy had also increased from 71% to 84%. In addition, the average length of stay had increased from 2.84 days to 3.17 days. In 1990, the majority (51%) of tourists to Barcelona were from the rest of Spain, with 32% from the rest of Europe, and the remainder (17%) from outside Europe. By 2001, the absolute number of Spanish tourists had actually risen by 150,000, but given the near doubling in the number of tourists overall, this higher total only accounted for 31% of the total number of tourists. The proportion of tourists from the rest of Europe went up from 32% to 40% (representing an absolute increase of around 800,000) and from the rest of the world from 17% to 29% (representing an absolute increase of around 600,000).

**Table 1** Legacy benefits of the Barcelona Olympic Games

	1990	2001
Hotel capacity (beds)	18,567	34,303
Number of tourists	1,732,902	3,378,636
Number overnights	3,795,522	7,969,496
Average room occupancy	71%	84%
Average stay	2.84	3.17
Tourist by origin		
Spain	51.2%	31.3%
Europe	32%	39.5%
Others (USA, Japan, Latin America)	16.8%	29.2%

Source: Turisme de Barcelona (BarcelonaTourist Board) and Sanahuja (2002).

Overall infrastructure investment prior to the games was \$7.5bn compared to a budget of around \$1.5bn for the Olympic Committee to stage the games. The Olympics in Barcelona were the most expensive ever staged prior to Beijing. However, Barcelona's use of the games as a city marketing factor is generally regarded as a huge success. This is evidenced by Barcelona's rise in ranking in the European Cities Monitor from 11th in 1990 to 6th in 2002.

## Conclusions

This chapter has attempted to improve understanding of the concept of the legacy of hosting a major sport event and to describe its many dimensions. Despite some ad hoc evidence from the Manchester 2002 Commonwealth Games and the Barcelona 1992 Olympic Games, it remains the case that the scientific evidence needed to evaluate the economic importance of the legacy of hosting major sports events, such as the Olympic Games, simply does not exist. This situation will not be resolved by the IOC's new Olympic Games Global Impact (OGGI) project, although this will substantially improve the evidence base. The problem is that it will take 15–20 years to measure the true legacy of an event such as the Olympic Games and the OGGI project finishes 2 years after the event has been held. So far, nobody has been prepared to commit the research resources required to carry out a scientific study of net legacy benefits. There is also the political position that host governments may not welcome a truly scientific assessment of the true legacy benefits of hosting the Olympic Games.

## Notes

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- [5] Cashman *The Bitter-Sweet Awakening: The Legacy of the Sydney 2000 Olympic Games*.
  - [6] Ibid., p. 15.
  - [7] Ibid.
  - [8] See Ibid., p. 15
  - [9] Mills, 'The Misuse of Regional Economic Models'; Crompton, 'Economic Impact Analysis of Sports Facilities and Events: Eleven Sources of Misapplication'; Howard and Crompton, *Financing Sport*; Kesenne, 'Miscalculations and Misinterpretations in Economic Impact Analysis'; Porter, 'Mega-Sports Events as Municipal Investments: A Critique of Impact Analysis'; Preuss, 'Electing an Olympic City – a Multidimensional Decision'; Baade & Matheson, 'Bidding for the Olympics: Fool's Gold?'; Szymanski, 'The Economic Impact of the World Cup'; Kasimati, 'Economic Aspects and the Summer Olympics: A Review of Related Research'; Cashman, *The Bitter-Sweet Awakening: The Legacy of the Sydney 2000 Olympic Games*.
  - [10] Kasimati 'Economic Aspects and the Summer Olympics: A Review of Related Research'.
  - [11] Rahmann et al. *Sozioökonomische Analyse der Fußball-WM 2006 in Deutschland*; Preuß & Weiss, *Torchholder Value Added, der ökonomische Nutzen Olympischer Spiele in Frankfurt Rhein/Main 2012*).
  - [12] Chalip, *Leveraging the Sydney Olympics for Tourism*.
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