

EC831 Economic Project

Analyse the Costs and Benefits of Hosting the Olympic Games

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Abstract

The research project was aimed to make a comprehensive analysis of costs and benefits of hosting of the Olympic games with desk-based approach. Extended literature review was conducted to identify and evaluate costs and benefits of hosting Olympic games from perspectives of society, economy and environment. Based on analysis of academic literature, it was found that hosting Olympic games generated economic viability issues, with economic benefits being short-lived. Moreover, economic viability was found to be characterised with regional disparity due to high infrastructural cost. From social perspective, it was found that hosting Olympic games enhanced national identity, promoted infrastructural development and attracted international attention, but holding the games caused displacement of communities and called for more spending on security. From an environmental perspective, the costs far outweighed the benefits associated with hosting the event as it increased carbon footprint, biodiversity loss, generated greater waste generation, and increased air and water pollution, but sustainability initiatives launched by the hosting countries benefited in the long term.

Introduction

The decision to host the Olympic games is complex and multifaceted, calling for careful consideration of potential costs and benefits. No consensus has been arrived at economic, social and cultural benefits of hosting the Olympic games. Thus, it becomes crucial to conduct a comprehensive analysis of costs and benefits associated with the hosting of the Olympics.

The paper aims to carry out a comprehensive analysis of costs and benefits of hosting of the Olympic games. An extended literature review was adopted. An extended literature review can be defined as a comprehensive and in-depth examination of existing research and literature on a particular topic or research question (Hart, 2018). To be specific, it carried out an extensive search and review of academic articles, books, dissertations and other relevant sources for identification and synthesis of literature related to cost and benefits of hosting Olympic games. Unlike a traditional literature review, an extended literature review provides a detailed critical analysis and synthesis of the literature and also highlights gaps, contradictions and inconsistencies in the established studies (Booth, et al., 2016).

In the present study, both empirical and theoretical research into influence of Olympic Games are included. To ensure the quality of the study, the paper is narrowed to peer-reviewed journal articles published in the last ten years. Apart from the peer-reviewed articles, books have also been used for conducting the study. The primary keywords that have been used for searching the literature related to the study are “cost”, “legacy”, “impact”, “intangible impact”, “mega-event syndrome”, “sustainability”, and other related keywords. Databases such as ScienceDirect, Sage publication, and Springer has been used.

Initial review of literature relating to the cost and benefit analysis of hosting the Olympic games reveals that there is an abundance of literature dedicated to understanding influence of the Olympic Games in the past decades, but most studies based a cost-benefit analysis (CBA) are of a recent origin, which is mostly restricted to the last 20 years. Most of the studies conducted have indirect reference to CBA. For instance, Scheu et. al. (2019) argue that cost and benefit are related to structural changes constituting the legacy of the games. Secondly, there has been a chronological progression of themes relating to influence of hosting the Olympic games. Thirdly, most of the established studies (e.g. Preuss, 2004; Zimablist, 2010; Baade and Matheson, 2016) relate to the economic viability problem associated with the hosting of the Olympics. This study aims to ask three research questions to analyze the costs

and benefits of the Olympic Games in terms of economic, social, and environmental aspects, respectively.

Costs and Benefits of the Olympic Games from an Economic Perspective

From economic perspective, Olympic games involve economic viability problem. An economic viability problem can be defined as a situation where a business or a project is unable to generate sufficient revenue or profit for covering the costs and is also financially unsustainable over a longer period (Osterwalder & Pigneur, 2010). To be specific, economic viability problem of hosting the Olympics can be further explained from perspective of short-lived benefits of hosting the event, differences in economic viability problems across different regions, and the higher infrastructure costs of hosting the Games.

Economic costs of holding Olympic Games

Costs and viability problems resulting from hosting the Olympics

Economic viability problem is closely related to hosting the Olympics. Economic viability measures whether an activity can bring about more economic benefits than economic costs (). Hosting the Olympics is criticised for heavy financial cost that far outweighs its benefits. There are two major categories of costs identified by most studies, namely, event costs and infrastructure costs. The infrastructure constructed for events is considered both a cost and a benefit in most studies, but Barclays (2009) suggests that construction should be considered as a cost instead of benefit, because of the large opportunity generated by hosting Olympic Games, where a country has to divert public expenditure from other projects to construction activities related to the games. Barclays (2009) also suggests that the perceived benefits associated with the construction, such as worker employment as temporary. Barclays (2009) has also highlighted certain hidden costs such as the upkeep and maintenance of the infrastructure. Baade and Matheson (2016) have also suggested that the construction of the general infrastructure and the operational costs associated with that infrastructure are the major cost associated with the hosting of the event. Dempsey et. al. (2019), which also consider infrastructure to be the major cost, has suggested a solution to overcome the infrastructure costs, which is to designate one or more cities as permanent locations for the games. In contrast, McHugh (2006) also suggests that event costs are a major expenditure on part of the hosting city, which includes bid costs, security, congestion externalities and

administrative costs. Shaffer and Greer (2003) have added legacy costs to the aforementioned costs, which entail the costs associated with ongoing operations after the games.

Studies, in general, reach a consensus on economic viability problem. For instance, Preuss (2004) is one of the most important studies on economic viability problem, which shows that the costs outweigh the benefits to a hosting city as the advantages are short-lived. Similarly, Zimablist (2010) also shows that there is an economic viability problem, but the negative impact varies from region to region depending upon different factors. Another important study suggesting the existence of an economic viability problem is Baade and Matheson (2016), conducted several years after Preuss (2004) also suggests that there is an economic viability problem resulting from infrastructure costs, monopoly rents, poor management, corruption, and unreasonable expectation of hosting countries. Similarly, Burgo and Cromartie (2018) also show that conducting the games is not viable because of high infrastructure costs, but unlike other studies, they also suggest a long-term increase in trade of the hosting cities because of increased global visibility. Unlike Burgo and Cromartie (2018), Mobilian (2016) has provided no economic advantages whatsoever and cited three major misconceptions that result in the economic viability problem –misconceptions regarding profit generation, tourism development and infrastructure development. Thus, it can be seen that over the last 20 years, most studies on the economic impact of the Olympic games in a region suggest that the costs outweigh the benefits associated with the hosting of the event. The three themes identified from the above studies are discussed below.

Economic viability problems impact different regions differently

Zimbalist (2010) suggests that economic viability problems impact different regions differently. The author in the above case has cited the example of various regions where the games have been hosted and provides an example of the economic viability problems that are unique to the specific regions. For instance, Zimbalist (2010) provides the example of Austria and suggests, based on a study by Ritchie and Smith (1991) that fewer than 10 per cent of North Americans and 30 per cent of Europeans can recall the Innsbruck, a city in the above country was a site of the 1976 winter Olympics. A similar development was also shown to exist regarding Lake Placid and Calgary by Zimbalist (2010). Further, Zimbalist (2010) also suggests that several factors might negatively impact the reputation of a place such as weather, pollution, unsavoury politics, terrorist attacks or other related events. Following the above, Zimbalist (2010) has also shown how uncertainties and heavy costs can create

economic viability issues for a region hosting the Olympics. For instance, the Barcelona Olympics left the Spanish government with USD 4 billion in debt. Similarly, the Japanese government was left with a debt of nearly USD 11 billion after the country hosted the Olympics (Burton, 2003).

Economic benefits of holding Olympic Games

Although lots of empirical evidence suggests an economic viability problem related to hosting Olympic Games, a few studies have also highlighted the economic benefits incurred by holding the large-scale events, the most important one of which is Papanikos and Patsouratis (2004). Two major kinds of benefits have been identified, which can be categorised into quantifiable and non-quantifiable. The non-quantifiable benefits such as national pride, and increased media attention are social and are discussed in a later section. Economically, Papanikos and Patsouratis (2004) have considered the quantifiable benefits when conducting the Cost Benefit Analysis. The study highlights two major scenarios in which economic benefits can be generated from the hosting of the games. The first scenario is that the revenues generated must at least be equal to the cost incurred for the conducting of the games, for long-term viability. The Olympic villages may have a high rate of return because of the alternative use permitted for the site. Secondly, the rates of returns depend on the assumptions and restrictions made about the post-Olympic use of the venue. Thus, it can be seen that the benefits that might accrue from the hosting of the games are subjective and depend on the policy of the government relating to the post-Olympic use of the infrastructure built for hosting the games.

Even though hosting Olympics games can bring about benefits, these benefits are short-lived. According to Preuss (2004), the Olympic games are a singular event and create an economic impact in a single period in a given region. Secondly, Preuss (2004) shows that the operational costs of the organizing committee are mainly obtained from the TV companies and the sponsors, which culminates in a lower opportunity cost from conducting the event. Further, the money obtained from the above sources cannot be used for other projects in the region, thereby lowering its economic benefit. The fourth reason is that all tangible benefits from the Olympics lose their power after a short period. The autonomous sources of income leave the region either through imports or taxes. The only thing that remains is the structural changes, which are the only remaining part of the economic Olympic legacy. Finally, the financing of the infrastructure needs to be covered by the region where the games are hosted.

It is often observed that there are limited subsidies from outside. As the infrastructure created by the region is not sustainable, it further limits the period of benefits.

Despite that the previous studies have revealed hosting Olympic Games generates both benefits and cost economically, it should be noticed that many studies on the economic impact of the Olympic games are predictive or ex ante (Barclay, 2009). To be specific they measure economic impact of Olympic games in two major ways, from perspective of influence of infrastructure construction and from perspective of estimated number of visitors, estimated days spent on the host city and estimated expenditure of visitors (Matheson, 2006). This practice of measuring economic impact is not reliable, and actually it has been denied by many. This is probably because an increase in direct expenditure would be deduced based on a gross measure rather than a net measure. The expenditure is inflexible. As suggested by Owen (2005), the studies on economic impact are grossly exaggerated.

Costs and Benefits of the Olympic Games from a Social Perspective

The studies on cost-benefit analysis of the Olympics show that the costs identified with the hosting of the event are mainly economic, while the benefits are mainly social. Several studies have been dedicated to exploring social benefits of hosting Olympic games. For instance, the most extensive list of benefits has been provided by McHugh (2006), which can be categorized into event and infrastructure benefits. McHugh (2006) has named the non-quantifiable benefits resulting from the games as the Olympic Halo, which are the non-tangible benefits resulting from the games such as the validation of the hosting city as a world-class city. Burgo and Cromartie (2018) have highlighted two such non-tangible benefits resulting from the hosting of the games – global visibility of the city resulting in a stimulation of exports, and a spillover of economic benefits to the nearby cities. Ribeiro et. al. (2020) believes that the increased global visibility of the hosting cities can result in increased investment and greater tourist flow to the region in the future. Ribeiro et. al. (2020) also suggests a positive social impact on the region such as improved transportation systems and carbon footprint reduction, but the study considers such social benefits to be temporary. However, Ribeiro et. al.'s (2020) study fails to consider influence of external factors (e.g. media coverage and types of spectators) and internal factors (e.g. residential proximity) on perceived social benefits of Olympic Games.

Overall, it can be seen that hosting the Olympic Games can bring significant social benefits, such as an increase in national pride, infrastructural development, and international attention. The Games can foster a sense of community and national pride, and investments in infrastructure development can benefit the host city and country long after the Games are over. Additionally, the Olympic Games attract a significant amount of international attention, which can promote the host city and country on a global stage. However, hosting the Olympic Games can also have social costs, such as the displacement of residents and increased security measures. Preparing for the Games often requires the displacement of residents from their homes and communities, leading to feelings of resentment and a loss of community identity. Furthermore, the Olympics require a significant increase in security measures, which can create a sense of anxiety and tension for residents and visitors. Each of the aforementioned social costs and benefits has been discussed below in a detailed manner.

Social Benefits

Holding Olympic Games enhances national pride. Several countries in the recent past have hosted major sports events for bolstering their national identities, even in the face of very high financial costs. Some of those events have also been successful in lessening the community divide and promoting community cohesion. The hosting of national events can increase national pride among the citizens of a country. The increase in the level of pride varies depending upon the segment of the population. For instance, it has been suggested by Leng et. al. (2014) that the increase in national pride is the highest among the people who are actively involved in sports. Further, the variation in national pride can also depend upon the demographics of the place. The increase in national pride can be considered one of the major non-economic benefits of hosting the Olympics. National pride can also help in strengthening the bond between the citizens of the host country. For instance, Singapore hosted the youth Olympic games in the year 2010 to bring together its people, as it is a multi-racial country and social order has to be established for ensuring a lower community divide in the country (Peh, 2012).

The second major social benefit of hosting the Olympic games is promoting infrastructural development. Preparing for the Games requires significant investment in physical facilities and infrastructure to accommodate the needs of the event. The infrastructural development resulting from the hosting of the Olympics can be divided into four distinct types – the construction of the Olympic villages, the state-of-the-art facilities, improvements to

transportation, and improvements to the telecommunication infrastructure. The host cities build Olympic Villages to house athletes during the Games. These villages typically feature new, modern housing and training facilities that can be used by the host city after the Games are over. For instance, the Olympic Village built for the 2012 London Olympics was transformed into new homes after the Games (International Olympic Committee, 2021). The Olympics also require state-of-the-art sports facilities that can accommodate various events. Host cities often build these facilities specifically for the Games and can become legacy assets that are used after the Games. For example, the Bird's Nest stadium in Beijing, built for the 2008 Olympics, has since been used for other major sporting events (International Olympic Committee, 2018).

Preparing for the Games often involves significant improvements to transportation infrastructure, such as new highways and public transportation systems. For instance, the Athens Metro system was expanded for the 2004 Olympics, making it easier for residents and visitors to move around the city (Short, 2008). The Olympics require advanced telecommunications infrastructure to support the various events and enable the transmission of data and information. For example, the 2018 Winter Olympics in Pyeongchang, South Korea, featured 5G wireless networks for the first time, which provided faster internet speeds and allowed for more advanced broadcasting capabilities (International Olympics Committee, 2018). These infrastructural developments can bring long-term benefits to the host city and country. The improvements in housing, sports facilities, transportation, and telecommunications infrastructure can boost the economy, improve the quality of life for residents, and attract future investment.

Third, hosting Olympic Games can increase international attention and exposure to the host city and country as has been shown by Burgo and Cromartie (2018). This is because the Olympics is a highly watched and anticipated global event that attracts a vast audience worldwide. The Olympics attracts media coverage from all around the world. Host cities can use this opportunity to showcase their unique culture, history, and attractions to a global audience. The media coverage can highlight the host city's achievements and future potential, which can help promote tourism and investment in the region. For instance, the 2016 Rio Olympics were watched by over 3.6 billion viewers worldwide, providing Brazil with significant international attention (Baker, 2016).

The Olympics provide a platform for host cities to showcase their culture and traditions through cultural events and ceremonies. These events can attract international attention and showcase the host city's unique identity. For example, the 2008 Beijing Olympics opening ceremony showcased Chinese culture and history, which helped promote China's image as a global cultural leader (International Olympic Committee, 2019). Hosting the Olympics can also attract business opportunities and investment to the host city and country. Companies from around the world may be interested in partnering with the host city or setting up operations in the region to capitalize on the increased exposure and attention. For example, the 2020 Tokyo Olympics attracted significant investment in Japan's tourism and hospitality industries (Osada, et al., 2016).

Social Costs

First, hosting of the Olympics can result in the displacement of residents in several ways. One common way is through the construction of new Olympic venues and infrastructure, which often requires the acquisition of land and property. This can lead to the eviction of residents, particularly those who live in low-income or informal settlements. Several examples can be provided to show the above. For instance, in preparation for the 2016 Summer Olympics, an estimated 60,000 people were displaced from their homes due to the construction of new Olympic venues and infrastructure, as well as the implementation of security measures (UNHCR, 2016). Similarly, the 2008 Summer Olympics resulted in the displacement of an estimated 1.5 million residents due to the construction of new Olympic venues and infrastructure, as well as the implementation of security measures (Shin & Li, 2013).

Second, hosting of the Olympic games involves an increase in security measures for ensuring the safety of the athletes, officials, spectators and the city itself. There are social costs that can be associated with the above. For instance, the increase in security measures increases the restrictions on civil liberties, such as increased surveillance, increased powers with the authorities for search and seizure, and the limitation on the freedom of movement. The aforementioned restrictions can be considered to be an infringement on individual rights and freedoms. The increased security measures also have the potential of exerting an emotional toll on the visitors and residents by creating a sense of fear and anxiety. Thus, the increase in security measures can also result in a negative emotional toll on individuals and communities (Roche, 2017).

Costs and Benefits of the Olympic Games from an Environmental Perspective

Several costs and benefits can be associated with the hosting of the Olympic games from an environmental perspective. It can increase carbon footprint, reduce biodiversity and increase waste, but it also generates benefits such as encouraging sustainability initiatives as a part of the planning and execution of the games and enhancing awareness of sustainable development.

Environmental costs associated with the hosting of the Olympic Games

One of the major environmental costs associated with the hosting of the Olympics is an increase in the carbon footprint. One of the primary reasons for the above is the travel component associated with the games, where the athletes, coaches, officials and the entourages have to travel to the locations using various modes of transport such as planes, trains, buses and cars. Further, the hosting of the Olympics requires a large amount of energy and resources for various purposes including the operations of the various venues, and transportation (Sotiriadou & Hill, 2015). A primary example that can be provided here is the 2014 Winter Olympics in Sochi, Russia where an estimated 2.1 million tonnes of CO₂ was released into the atmosphere, mainly from the construction and operation of the venues and the infrastructure. Following the above event, several carbon reduction projects had to be implemented to balance the carbon footprint from the above event. For instance, a program initiated by the Dow Chemical Company took four years to considerably balance the carbon footprint resulting from the above event (International Olympic Committee, 2013).

The second major cost that can be associated with the hosting of the Olympic events is habitat loss and biodiversity. The construction of the venues for the games can lead to the loss of natural habitats, or the displacement of several species of flora and fauna (IUCN, 2020). For instance, the construction of the Olympic village during the 2016 Summer Olympics in Rio de Janeiro destroyed large mangroves, which served as a habitat for many species of plants and animals. The organizing committee of the 2016 Summer Olympics pledged to plant about 24 million trees to offset the impacts of the hosting of the Olympics, but the Rio 2016 Sustainability report published in the year 2014 suggested that the organizing committee had failed to plant the requisite number of trees. The committee was

able to plant only 5.5 million trees instead of the pledged 24 million (Boykoff & Mascarenhas, 2016).

Waste generation is another environmental cost that can be associated with the hosting of the Olympics. The presence of large crowds at the events and the high level of consumption can result in significant waste generation, which also includes a considerable amount of plastic and other non-biodegradable material. Further, the ecological footprint of waste generation during an event is not included in the standard footprint calculation of the event but is rather calculated as incidental (Yang, 2022). For example, the 2012 Summer Olympics in London resulted in a generation of over several million tonnes of waste, that include plastic cups, food containers and packaging material (Karamichas, 2013).

Air and water pollution is considered a frequent problem in sports Mega-events. Several local and central governments have to introduce emission control and reduction programs following the hosting of mega-sporting events such as the Olympics to bring back the air quality to normal. Transportation and energy use among other factors contributes significantly to air and water pollution, which can harm human health and the environment (De La Cruz, et al., 2019). For instance, the 2008 Summer Olympics in Beijing resulted in very high levels of air pollution, which had a negative impact on both athletes and spectators. Many measures were put in place during the event that contained the level of pollution to a certain extent, but after the measures were revoked, the air quality worsened (Eguiguren, 2016).

Environmental benefits associated with the hosting of the Olympic Games

Several host cities have implemented sustainability initiatives as a part of the planning and execution of the games, which also includes the use of renewable energy sources and waste reduction programs. It can be considered a major environmental benefit associated with the hosting of the Olympics. An example that can be provided in the present context is the 2020 Summer Olympics held in Tokyo, Japan which incorporated several sustainability initiatives, such as the use of renewable energy sources, the installation of LED lighting systems, and the reduction of waste through recycling and composting programs. An initiative launched by the Japanese government was the Tokyo cap-and-trade programme and Saitama Target Emissions Trading System, which resulted in over 217 businesses providing certified Excess reduction Credits, which made 4.38 million t-CO₂ available for offsetting the emission from

the games. The initiatives adopted by the government contributed to the circular economy and promoted a sustainable society (The Tokyo Organising Committee of the Olympic and Paralympic Games, 2020).

In addition, some host cities often consider the games as an opportunity to invest in long-term infrastructure and sustainability projects, such as improved public transportation and an increase in green spaces. An example of the above is the 2010 Winter Olympics in Vancouver, where the Canadian government built a new rapid transit line, which over a period of time has become a key component of the city's public transportation system. The transit line, which is also called the Canada line is notable for its use of a public-private partnership procurement model, which helped in avoiding substantial cost overrun risks associated with the project, and provided a lucrative concession to the government (Sroka, 2010).

Besides, Olympic games provide a platform for raising awareness and educating the public about various environmental issues. The awareness and education initiatives have resulted in increased support for sustainability initiatives. For instance, the Korean Government conducted several environmental education programs and activities, that also included a sustainability-focused exhibit and a tree-planting campaign during the 2018 Winter Olympics held in Pyeongchang (Kim & Grix, 2021).

In certain cases, the games have also catalyzed biodiversity conservation efforts of various governments, such as the protection of natural habitats and the restoration of ecosystems. An example of the above is the 2016 Summer Olympics in Rio de Janeiro, which included a biodiversity conservation program which aimed to protect and restore key habitats, such as the Atlantic Forest and Guanabara Bay (United Nations Environment Programme, 2013).

However, it should be noticed that measuring environmental impact of Olympic Game may involve errors. One of the commonly used approach is environmental footprint analysis which is based on wealth of information. It is a great challenge to collect data about the event related consumption that generates carbon footprint. Ecological Footprint approach also fails to consider all the human impacts on the environment and fail to consider environmental impact on communities and local residents (Yang, 2022).

Conclusion Reflection and Recommendations

Summary of Main Findings

The study shows that several economic viability issues arise from the hosting of the Olympics. The economic viability problems arise as the benefits of conducting the mega-sporting event are short-lived and are unable to balance the costs in the long term. Further, the issues associated with economic viability differ from region to region and mainly result from very high infrastructural costs associated with the program. The primary benefits to the hosting countries are social, as the hosting of the Olympics results in an increase in national identity, which can be highly beneficial in multi-community countries. Further, hosting the games also results in infrastructural development and an increase in international attention for the region. While the social benefits associated with hosting the event are plenty, there are also social costs associated with hosting the event. The first major social cost associated with the event is the displacement of communities that takes place for constructing the venues and other related infrastructure. Further, the increased security can also result in increased social costs by limiting the civil liberties of individuals in the region. From an environmental perspective, the costs far outweigh the benefits associated with hosting the event. The primary reason for the high environmental costs during the event is – an increased carbon footprint, biodiversity loss resulting from the construction activities, greater waste generation, and increased air and water pollution. In contrast to the above, some of the environmental benefits that might result from the event are the several sustainability initiatives launched by the hosting countries, legacy projects that are beneficial post-event, environmental education during the event, and biodiversity conservation activities that are launched as a part of the event.

Reflections on Limitations

The review of the literature shows the absence of a comprehensive study that considers all the direct and indirect costs and benefits that can be associated with the hosting of the Olympics. Further, it can also be seen that several non-quantifiable costs and benefits are associated with the conducting of the games, and none of the studies suggests a viable methodology for quantifying the same for using them in a CBA. While studies like McHugh (2006) have tried to use the non-quantifiable benefits while conducting a CBA, the data obtained for the study can be considered to be inferior, as past data relating to other regions might not be appropriate to another region hosting the games. Further, it is also found that almost all the

studies suggest that the costs outweigh the benefits when hosting the Olympics, but most of them fail to provide a viable solution to the problem.

Recommendations

Several steps can be taken by the hosting nations for increasing the economic benefits associated with the event and lowering the social and environmental costs. For example, one of the strategies that can be adopted is to use existing infrastructure whenever possible, instead of building newer facilities, which can considerably reduce the economic, social and environmental costs associated with the hosting of the event. Secondly, the organizing committee should try to involve the local communities in the planning and execution of the projects, which can help in ensuring that the benefits of the Olympics are distributed more equitably and the local concerns relating to the game are also addressed. Finally, the committee and the hosting nation should monitor and evaluate the impact of the event. A comprehensive monitoring and evaluation activity carried out for assessing the impact of the Olympics on an economic, social and environmental level can help in identifying areas for improvement in the future Olympics.

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