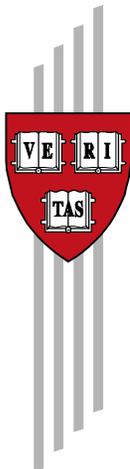


Bringing Home the Gold?
A Review of the Economic Impact of
Hosting Mega-Events

Douglas Barrios, Stuart Russell and
Matt Andrews

CID Working Paper No. 320
July 2016

© Copyright 2016 Barrios, Douglas; Russell, Stuart;
Andrews, Matt; and the President and
Fellows of Harvard College



Working Papers

Center for International Development
at Harvard University

Bringing Home the Gold?

A Review of the Economic Impact of Hosting Mega-Events

Douglas Barrios
Stuart Russell
Matt Andrews

Harvard Kennedy School
July 2016

Research supported by the International Center for Sports Security (ICSS). All views and contents are those of the author alone and should not be seen to reflect the views of the ICSS.

**Bringing Home the Gold? A Review of the Economic Impact of Hosting
Mega-Events**

Introduction 4

Section 1. Increased Economic Activity 5

 1.1. Access to previously inaccessible resources 7

 1.2. Multiplicative effect..... 12

 1.3. Revenues 14

Section 2. Increased Tourist Arrivals 21

 2.1. Increases in the number of visitors and tourism spending 22

 2.2. Image enhancements..... 28

 2.3. Building tourism capacity 29

Section 3. Other Qualitative and Social Impacts..... 32

Section 4. Implications for Potential Hosts of Mega-events 34

Conclusion..... 35

References..... 37

Introduction

There is perhaps no larger sports policy decision than the decision to host or bid to host a mega-event like the FIFA World Cup or the Summer Olympics. Hosts and bidders usually justify their decisions by touting their potential impact. Many organizers and promoters either fund or widely disseminate ex-ante studies that tend to highlight the positive effects of the event. For instance, the consultancy firm Ernst & Young produced a 2010 report prior to the 2014 World Cup in Brazil that painted an optimistic picture of the event's potential legacy. It estimated that an additional R\$ 142.39 billion (4.91% of 2010 GDP) would flow through the Brazilian economy over the 2010-2014 period, generating 3.63 million jobs per year, R\$ 63.48 billion (2.17% of 2010 GDP) of income for the population and additional tax collection of R\$ 18.13 billion (0.62% of 2010 GDP) for the local, state and federal governments. Ernst & Young estimated that during the same period 2.98 million additional visitors would travel to Brazil, increasing the international tourist inflow up to 79%.

Such results, if true, would clearly be attractive for governments considering a bid, but these expected impacts don't always materialize. Moreover, hosting mega-events requires significant investments - and the cost of these investments is rising. Zimbalist notes emerging economies like China, Brazil, and South Africa have increasingly perceived "mega-events as a sort of coming-out party signaling that [they are] now a modernized economy, ready to make [their] presence felt in world trade and politics" (Zimbalist 2015). Their intentions may be noble, but the intention of using mega-events as a "coming-out party" means developing countries hoping to host them need to make massive investments. They are confronted by significant obstacles in that they lack sufficient stadiums, accommodations, transportation systems, and other sports-related infrastructure. As a result, each of the mega-events hosted by emerging economies has been exorbitantly expensive. The 2014 World Cup cost Brazil between USD 15 billion and USD 20 billion, while Beijing reportedly spent USD 40 billion prior to the 2008 Summer Olympic (Zimbalist 2015). Additionally, as the debt-ridden 1976 Summer Olympics in Montreal demonstrates, expensive mega-events are not limited to emerging economies alone. Flyvbjerg and Stewart have even shown that every Olympics since 1960 has gone over budget (Flyvbjerg and Stewart 2012).

Such incredible figures, in terms of both costs and benefits, beget the question: are mega-events worth it? Which type of reports should governments focus their attention on? What economic consequences should a government reasonably expect? With such high stakes, policymakers need to choose wisely. We attempt to answer these questions and aid the decisions of policymakers by providing a concise review of the rich academic literature on mega-events. For the purposes of this paper, we mainly focus on the Summer Olympic Games and the FIFA World Cup as mega-events. However, we also leverage information regarding events like the Winter Olympic Games, the UEFA football championships, and the Commonwealth Games. These events are organized on a smaller scale than the previous two, but they might provide some insights on how to best understand mega-events. We focus on claims surrounding the direct or indirect mechanisms that facilitate the impact that ex-ante studies predict. We provide a review of these claims and their validity according to the existing literature.

Section 1 focuses on the argument that mega-events lead to increased economic activity in the host economy. Specifically, we evaluate whether or not mega-events leads to access to previously inaccessible funds and increased investments. These investments could theoretically come from supranational organizations, private stakeholders, or public stakeholders. We also consider whether or not these new expenditures and investments have the multiplicative effect that many ex-ante studies assume they have. We finally investigate if the economic activity surrounding mega-events leads to increased revenues and tax collection for host governments. Overall, the existing academic literature suggests that any increased economic activity resulting from the event is routinely dwarfed by additional public budgetary commitments. Moreover, the arguments regarding multiplicative effects and increased revenues also tend to be exaggerated.

Section 2 shifts the focus to the potential impact of mega-events on a specific industry: tourism. We explore the effect of mega-events on the number of tourists visiting the host region and their spending habits. We explore this channel both for analyses specific to a single mega-event and for cross-country evaluations incorporating many events. Next, we consider the impact of a mega-event on a region's brand and image in the international community with the idea of testing if hosting the competition will impact future tourism. Finally, we consider if mega-events lead to increases in the capacity of a city or country to welcome future tourists as a result of improved airport infrastructure, accommodations, and/or transportation systems. As was true in Section 1, the academic literature suggests that the claims of many ex-ante studies are misleading. Our review finds that there is some evidence for increases in tourist arrivals to certain events, but those increases are far smaller than what is generally predicted beforehand. These effects are also usually dependent on factors, such as the timing of the competition, that are specific to the host region and the event itself.

Section 3 briefly discusses other potential qualitative and social impacts of mega-events such as international business relations, crime reduction, and the "feel-good effect." In the penultimate section, Section 4, we discuss how these conclusions should impact the decision-making of policymakers. Finally, in a short conclusion, we summarize the findings of our review.

Section 1. Increased Economic Activity

It has been argued that both the preparation for mega-events and the actual events themselves lead to an increase in economic activity. Furthermore, it has also been argued that this increased level could potentially be sustained even after the event has passed. In the following paragraphs we will attempt to outline the general rationale behind this argument.

Stakeholders that hold this view tend to claim that in preparation for the event the host has to undertake major investments not only in sports-related infrastructure, but also in other forms of infrastructure. These investments would be made with three types of funds: (i) investments made by supranational organizations (i.e.: IOC, FIFA, etc.), (ii) investments made by private stakeholders and, (iii) investments made by public stakeholders.

An implicit assumption as to why these investments would lead to increased economic

activity, is that the event would allow the host to access resources that otherwise wouldn't be available. The rationale is that supranational organizations and certain private stakeholders would've simply chosen not to invest in the region in the absence of the event, or would have done so at a much smaller scale. Moreover, it is argued that political gridlock would've prevented available public resources to be effectively deployed in these infrastructure investments.

The argument for increased economic activity also holds that infrastructure investments would presumably serve as an engine of growth for the local economy as the required construction activities demand direct and indirect inputs from other local industries, effectively creating a multiplicative effect throughout the economy. Furthermore, in the short run, these investments themselves would create additional employment in the local economy as these endeavors may require sizable labor. In turn, these new jobs might translate into new spending in the region, which would also generate a multiplicative effect throughout the economy.

Meanwhile, during the event itself, the assumption is that attendees, both locals and foreign tourists, will spend on tickets, merchandise and memorabilia related to the event. Similarly, it is expected that they also consume food and beverages in the arena. Lastly, it is assumed that the festive mood around the event would influence locals and visitors that are not necessarily attending the event, thereby increasing spending in other social and leisure activities more loosely associated to the event. Once again, this increased economic activity could presumably lead to new jobs and new spending in the region. Lastly, it is presumed that at least portion of the new jobs created due to the event are maintained over time, allowing for the increased level of economic activity to persist long after the event has occurred.

As an example of this type of analysis, Haddad and Haddad (2010) used a dynamic computable general equilibrium model (CGE) to estimate that hosting the 2016 Summer Olympics in Rio de Janeiro, Brazil could have an output multiplier effect of 4.26. This means that for every USD 1 invested in the Olympic Games, the private sector would generate additional USD 3.26 in productive chains associated with the Games by 2027.

More precisely, the authors argue that injecting USD 14.4 billion related to the event would generate USD 39.1 billion in private productive activity, which in turn would generate additional tax collection at the municipal level (USD 269.8 million), state level (USD 582.9 million) and federal level (USD 4.82 billion). Additionally, with regards to labor absorption, the authors estimate that the investment would generate an annual average of 120,833 additional man-year equivalents (MYE) for the period between 2009 and 2016 and an annual average of 130,970 additional MYE for the 2017-2027 period. Lastly, the authors estimate that the productive effects of the Olympic Games would influence 55 distinct sectors of the Brazilian economy. 35% of the total impact would be concentrated on the following industries: civil construction; real estate and rental services; services rendered to business; oil and gas; information services; and transport, warehousing and mailing services.

There are substantial number of ex-post evaluations that have attempted to address claims such as those made by Haddad and Haddad. Most of these ex-post evaluations have had

results significantly lower than the ex-ante estimates. This is because the previously described mechanisms are based on a set of assumptions that don't always hold up well against detailed scrutiny.

1.1. Access to previously inaccessible resources

As previously mentioned, one of the initial assumptions is that the event allows access to resources that otherwise wouldn't have been available. Namely the assumption implies three types of potential funds: (i) investments made by supranational organizations (i.e.: IOC, FIFA, etc.), (ii) investments made by private stakeholders and, (iii) investments made by public stakeholders.

i. Funding from supranational organizations

Ex-ante studies assume the introduction of autonomous spending financed by supranational organizations like the IOC or FIFA. The rationale is that, without the event, these organizations would not have invested in the hosting region. This is true as these funds are specifically earmarked to be used for the mega-event. Nonetheless, spending associated to this type of funding is generally restricted to operational and promotional costs, not major infrastructure investment. Moreover, the spending represents a relatively small share of the overall preparation costs of the event.

In preparation for the 2010 World Cup in South Africa, FIFA spent, according to their 2010 financial report, USD 1.23 billion over the 2007-2010 period. However, this did not include any investments in stadiums, precinct development, transport infrastructure or other infrastructure. Only 25% of these expenses were actually spent in South Africa either as contributions to the Local Organizing Committee or as investments related to the World Cup's legacy. The rest of the expenditure was not deployed in South Africa, rather it was devoted to one of the following areas: prize money for participants; payments to participating member associations; team lodging and travel; IT solutions for finding accommodations and ticketing; TV production; refereeing matters; kick-off concerts; insurance; preliminary competition; marketing costs and benefits for clubs.

Furthermore, according to the Sport & Recreation Department of South Africa (2013), operational costs raised to USD 526 million, significantly above the USD 226 million contributions that FIFA made for the Local Organizing Committee. Comparatively, the South African Public Service Commission estimates public investment for the 2010 World Cup at around USD 3.5 billion, which is over ten times what FIFA actually spent on South Africa. It is almost three times FIFA's total investment.

This phenomenon only increased in magnitude for the 2014 Brazil World Cup as the USD 2.22 billion reportedly spent by FIFA in preparation for the event was dwarfed by public investments estimated to be between USD 10 billion and USD 15 billion.

Therefore, it is difficult to make the case that "gaining access" to these earmarked funds spent by supranational organizations makes it worthwhile to incur the counterpart investments that are required from host regions.

ii. Funding from private stakeholders

The case of new funds originating from private stakeholders is grounded in the rationale that, in the presence of a mega-event, a number of private stakeholders would choose to make a set of significant investments in the host region that they would've not chosen to do in absence of the event. The 1984 Los Angeles Olympics is usually used as an example for this line of reasoning since it is widely considered as the first privately funded Olympics. However, a number of specific dynamics regarding the 1984 Olympics made this experience the exception rather than the norm.

The period prior to the 1984 Olympics was a turbulent one. The 1968 Olympics in Mexico City were held under the shadow of significant civil unrest in the days previous to the start of the event. The 1972 Olympics in Munich were tarnished by the kidnapping of eleven Israeli Olympic athletes, who were taken hostage and assassinated along with a German police officer. The 1976 Olympics in Montreal were then perceived to be a financial distress as they sunk the city into a multi-billion dollar debt that was only paid off in 2006. Lastly, the 1980 Moscow Olympics were boycotted by over 60 countries in protest of the Soviet invasion of Afghanistan. In the midst of this tumultuous run, Los Angeles presented in 1978 the lone bid to host the 1984 Olympics, making it the first games to be awarded without competing bids since the 1932 Olympics.

In light of these peculiar circumstances, the Los Angeles Olympic Organizing Committee was able to negotiate certain terms with the IOC that no other host had been able to do so in the past - or has been able to do since. According to Andranovich, Burbank and Heying (2001), the LA bid offered two novel proposals: (i) the games would be privately funded, and (ii) the host city, not the IOC, would negotiate television rights. Furthermore, the insistence by city officials to limit the city's financial liability convinced the IOC to waive a rule that required the host city be financially responsible for the games.

Andranovich, Burbank and Heying (2001) state that the Los Angeles Olympic Organizing Committee (LAOOC) was set up with clear goals: maximize corporate sponsorship, minimize the costs of organizing the games by leveraging existing facilities, leverage volunteers rather than paid staff, and request sacrifices from Olympic visitors and local communities alike. Preparatory investments, all of which were made by private entities, were minimal as only a few facilities were built or refurbished. Furthermore, according to the authors, the Games were used as a reason to renovate the airport and expand telecommunications infrastructure, but they did not spawn secondary development projects. This model allowed for a controlled budget of just over USD 400 million according to the Official Report of Los Angeles 1984 (Los Angeles Olympic Organizing Committee and Perelman 1985). This sum represented approximately 25% of the costs of the 1976 Montreal Olympics and allowed for an actual profit of over USD 200 million.

Nonetheless, as was previously mentioned, the environment that allowed for the controlled budget and eventual profit is rather unusual. For the sake of comparison, *The Guardian* approximates that 85% of the more than 11 billion pounds budgeted for the 2012 London Olympics originated from public funds. *The Guardian* estimates that the remaining 15% would be divided equally between IOC funding and private sponsorship. This means that public investment was over thirteen times the amount of private investment and almost

seven times the non-public investment. Similarly, private investment in areas such as the development of the Olympic Village, which in theory would be a prime opportunity for private sector involvement, was lacking. As a matter of fact, London's Olympic Delivery Authority developed the Olympic Village at a cost of 1.1 billion pounds and later sold it to the real estate investment company Delancey and Qatari Diar at a net loss of 275 million pounds.

iii. Funding from public stakeholders

Lastly, the assumption of new public investment stems from the logic that political gridlock in the host government prevents the use of available public resources for much-needed infrastructure investments. This perspective sees the event as a catalyzer to overcome these gridlocks. However, this argument may face at least two different caveats. The first concerns the actual presence of gridlock impeding the access to resources. The second is related to whether or not readily available public resources would actually go unused.

The presence of political gridlock is very difficult to assess in an overarching manner as it is highly context specific. With respect to the availability of unused public resources, it seems as very unlikely that they would actually go unused, especially when one considers the numerous instances of government indebtedness related to hosting mega-events. One of the most notorious cases is the USD 1.2 billion debt that the local government of Montreal was straddled with after hosting the 1976 Olympics. When taking into account the interest paid on the debt and the additional funds required to complete the facilities after the Games had finished, the Olympic debt totaled USD 2.73 billion (Levesque, 2001) and it took 30 years to be fully paid off. Other recent cases of multibillion dollar public sector debts for hosting major sporting events include the 2004 Summer Olympics in Athens and the 2010 Winter Olympics in Vancouver.

Gouget and Barget (2006) argue that debt which ensues from hosting the event is a negative externality of sporting events, especially if the investments made do not later lead to real economic development. Similarly, Zimbalist (2015) states that in order to meet these debt services the government must either raise taxes or reduce government services, both of which would introduce a drag on the local economy. Furthermore, Zimbalist argues that this potential drag would only be economically justified if the original investment made with the borrowed money has a larger positive impact for the region's long-term development than the potential drag. This is a high threshold to meet. Under these circumstances, it would seem unlikely that regions would incur this type of debt if they had access to otherwise unused public resources.

Emerging research by Andrews and Balchin has recently introduced an interesting perspective regarding this debate about public resources. They argue that, in the case of the 2010 World Cup in South Africa, the local governments of Cape Town and Durban benefited from a series of non-stadium capital investments funded by the national government that dwarfed those undertaken by the city itself. Following this logic, even though at the aggregate level the argument that there's no such thing as "readily available public resources going unused" holds, it is possible that a given place, such as a particular city, could theoretically benefit from a substantial transfer of resources from the national or regional government. These funds transferred from the national government likely

imply the same tradeoffs highlighted by Zimbalist (2015), but these costs are not necessarily borne by the benefited cities. They are rather subsidized by the whole country. Andrews and Balchin's argument inserts a distributional dynamic that's worth studying as it might help explain the rationale for cities to participate as hosts for events where this cross-subsidization is possible.

iv. Prioritizing investments in mega-events over other potential investments

Finally, even if there are potential funds available, it begs the question whether this type of public investment should be prioritized over alternatives. More specifically, the question is whether the opportunity cost of building event-related infrastructure is higher or lower than other type of public investment. Kesenne (1999) argues that, even though a mega-event may create net benefits, public funding should occur only if the event yields higher net benefits than alternative projects. While it is not feasible to know the net benefits of all other potential projects and to measure them precisely ex-ante, the author argues that these elements should nonetheless be considered.

Matheson and Baade (2004) posit that context might significantly influence the answer to this question. They argue that the opportunity cost of capital may be particularly high in developing nations given that there may be many other public projects that have more value for society, but this might not be the case for more developed nations. The authors compare the significant controversy surrounding a USD 330 million investment in a new soccer stadium in Nigeria with the relatively little criticism that Japan received during a USD 6 billion spending spree for the 2002 World Cup. They argue that the different reactions emanate from the difference in perceived opportunity costs. While the new stadium in Nigeria had a higher cost than other societally desirable options, the alternative infrastructure projects in Japan were deemed by the authors to be likely other potential "white elephants". Similarly, Humphreys and Prokopowicz (2007) argue that transitional economies that attempt to host these major events need to undertake major upgrades to their current inventory of sports stadiums and five-star hotels. They argue that this type of spending has a higher opportunity cost than in developed economies. These arguments should serve as an important cautionary note when developing economies consider hosting these types of events.

It is hard to disentangle between what kinds of infrastructure investments are specific to the event and which ones would have been carried out by the city even without the event. For instance, Humphreys and Prokopowicz (2007) discussed this issue when assessing the prospects of Poland and Ukraine hosting the 2012 UEFA Euro Cup. They found that, during the years preceding the event, Poland would reportedly spend USD 8 billion on motorways, USD, 4.6 billion on upgrading inter-city rail connections and USD 1.7 billion on public transportation in large cities. Some of this construction would be contingent on winning the bid and would be made to comply with UEFA requirements, but much of it would be taking place independent of the outcome of the bid. Under these circumstances, it's hard to identify what amount should be directly attributed to hosting the event and therefore what costs and benefits should be considered when evaluating the impact.

However, for event-specific investments such as sports stadia, Matheson (2006) argues that they are often highly specialized facilities that have only limited use following a major

sporting event and hence should generally not be the focus of public spending. The majority of economists appear to agree with this viewpoint as shown in a survey of a random sample of American Economic Association members conducted in 2005 by Robert Whaples (2006). In this survey, economists were asked if local and state governments in the U.S. should eliminate subsidies to professional sports franchises to which 58% of economists strongly agreed, 28% agreed and only 5% disagreed with the rest remaining neutral. It should be noted that the question didn't particularly refer to the building of stadia or mega-events specifically, but such overwhelming agreement should be considered indicative of a general consensus on the subject.

In their own review of the subject, Coates and Humphreys (2008) find near unanimity in the conclusion that stadiums, arenas and sports franchises have no consistent, positive impact on jobs, income, or tax revenues. They argue that, if sports facilities do not have any important positive economic impact in the local economy, subsidies for the construction and operation of these facilities is difficult to justify.

There's an argument to be made that the majority of these studies were not primarily focused on mega-events. Moreover, they were based in the United States, which has a particular urban structure and a recent tendency to locate stadiums in suburban areas that could theoretically downplay their impact. In an attempt overcome these purported limitations, Feddersen, Grötzinger and Maennig (2009) produced the first multivariate study that uses a difference-in-difference model to examine the potential income and employment effects of new stadiums outside of the United States. They focus on new stadiums for the 2006 World Cup in Germany. However, the authors were not able to identify income or employment effects significantly different from zero in the urban districts with new stadiums¹.

Based on these arguments, there is nothing to suggest that stadium building is the best use of government funds, especially when funding these stadiums implies very specific tradeoffs. Several recent developments have made these tradeoffs very evident. The new stadiums built in Cuiaba and Manaus for the 2014 Brazil World Cup reportedly cost 50% more than these cities' educational budgets. However, the stadium in Cuiaba had to be shut down just 7 months after the World Cup for emergency repairs. Likewise, the Manaus stadium had hosted only 11 events in the five months after the tournament and required an upkeep that proved too much for any local team to take. Even the projects associated to the stadiums in these cases may not have been worthwhile. For instance, a USD 800 million light railway in Cuiaba linking the airport to the city center was meant to be completed in time for the World Cup, but just half a mile of a 14-mile track was built on time.

Similarly, Scott Walker, the governor of Wisconsin in the United States, approved legislation in August 2015 that would provide USD 250 million dollars of public money to aid in the construction of a new stadium for the Milwaukee Bucks basketball team. This was just one month after Walk decreased the budget of the University of Wisconsin system by USD 250 million.

¹ It's worth mentioning that the authors did stress that the impact of these stadiums might be found in "feel-good" and "image" effects. However, these variables are difficult to measure and to compare with more tangible variables.

These tradeoffs could be significantly starker when one considers other public costs associated with sports facilities like land costs, infrastructure costs, operational costs, and the potential of forgone property taxes. When analyzing the 99 stadiums used in 2001 in the big four American major league sports (NFL, NBA, MLB and NHL), Long (2005) finds that the real cost of public funding for these facilities was underreported by 40%. While the potential underreporting for mega-events stadiums was not directly investigated, it is another topic that should be considered.

Summary

In general, the assumption that “new” external resources become available when hosting an event appears to be rather limited since any “new” external resources are routinely dwarfed by complementary public investments. Furthermore, these public investments are generally financed through additional debt commitments, not necessarily through existing “politically clogged” resources. This likely implies tax hikes or budget cuts down the road. Therefore, it appears that mega-events will only be beneficial if the purported net benefits surpass those of alternative publicly financed projects. The main exception to this finding might stem from a distributional argument in which host cities stand to benefit from cross-subsidization by national or regional governments.

1.2. Multiplicative effect

Another assumption is that the investments associated to the event will generate a multiplicative effect across the economy (primarily through additional jobs creation), but there are reasons to believe that this effect may also be overstated. To start the economic multipliers used in most ex-ante analyses are calculated using complex input-output tables, that assume specific inter-industry relationships within regions and are based upon an economic area’s normal production patterns. However, as Matheson (2009) argues during mega-events, these inter-industry relationships may not hold, rendering the multipliers highly inaccurate.

For instance, the organization of these events is a major endeavor that may require productive resources vastly superior to local supply. It is unlikely that existing capacity would be able to sustain previous construction activity while at the same time handling the additional work associated with specialized multi-billion dollar projects. Either existing resources would need to be re-prioritized from other construction (which at best entails a zero net impact on the economy) or, more likely, substantial part of the work would be outsourced from the local economy, implying an outflow of money away from the region.

Moreover, Matheson (2009) argues that there might be other significant leakages that cause expected multiplicative effects to be overstated. For example, hotels, many of which are national or even global chains, routinely raise their prices during mega-events while wages paid to hotel’s worker remain unchanged. This lack of detectable effect on income from mega-events has also been suggested by Hagn and Maennig (2008, 2009).

This might cause a drop in the expected multiplier effect because capital income is far less likely to stay within the geographic area than earned labor. Hence, increased profits for non-local capital owners would turn into higher than normal leakages of income.

Additionally, Baade and Matheson (2004) state that additional leakages might vary depending on the state of the economy, if the host economy is at or near full employment, it may be that the labor necessary to prepare for the event might reside in other communities where a labor surplus exists, further limiting the potential multiplier effect.

Given these findings, there's reason to believe that the jobs created by mega-events are also bound to be fewer than originally estimated ex-ante. Baade and Matheson (2002) examine job creation associated to the 1984 and 1996 Olympics. They find that if all unexplained increases in employment were attributed to these events (a substantial assumption on its own right) then the 1984 Olympics led to 5,000 new jobs during the year of the event and the 1996 Olympics led to a cumulative increase of somewhere between 3,500 jobs and 42,000 jobs during the 1994-96 period. This latter estimate not only demonstrates a large degree of uncertainty but also shows that, even in the most optimistic scenario, the potential job creation is roughly half of the 77,000 originally predicted by the Atlanta Olympic Organizing Committee.

Similarly, Feddersen and Maennig (2010a) use highly localized data to find no positive effects from the 2006 World Cup in Germany on employment. This is consistent with a previous finding from Hagn and Maennig (2009) that the effect on unemployment in the twelve match venues of the 2006 World Cup isn't significantly different from zero². Finally, Hagn and Maennig (2008) did not find evidence that the 1974 World Cup in Germany generated employment effects positively different from zero in the host cities in the short term or long term. These findings also hold for other major football events outside of Germany. For instance, Baumann, Engelhardt and Matheson (2012) found no statistically significant increase in employment in the cities that hosted the 1994 United States World Cup.

Zimbalist (2015) summarizes these and other ex-post impact studies in the following way: "In sixteen cases, the games were found to have no statistically significant effect on employment or income, in seven cases a modest positive effect on income or short-run employment was found, and in three cases a negative effect on income was found. Where there was a modest short-term positive employment effect, it was in each case a fraction of the officially projected effect and must be measured against the large public investment in all cases, except Los Angeles, where public funding was diminutive".

Hotchkiss, Moore and Zobay (2003) presented one of the few studies in which the expected impact was surpassed by the actual impact. The authors found that areas that hosted the 1996 Atlanta Olympics experienced a growth of 293,000 jobs, significantly higher than the previously mentioned 77,000 jobs. Nonetheless, when considering employment growth in Atlanta and the surrounding areas, this was just 0.2 percent higher than would have been expected for the 1991-96 period. Additionally, the authors did not find any significant effect on wages. Furthermore, Feddersen and Maennig (2009) attempted to confirm these

² It should be noted that Hagn and Maennig (2009) and Baade and Matheson (2004) argue that it is difficult to strictly reject the claims made by boosters and promoters. This is because, in many cases, the effects claimed are so close to zero at the scale at which data is available. This means that results that would generally be interpreted to mean that there are no effects on unemployment could be interpreted to mean that the claims made by boosters could not be refuted.

findings and address some methodological concerns with their approach. The authors find that, after adjusting the specification to correct for potential distortions in the original model, the existence of a positive Olympic effect is no longer clear and could not be confirmed.

Summary

Overall, most of the ex-post literature on multiplicative effects of mega-events appears to show that ex-ante multiplicative effects are significantly overestimated and that in practice these effects are not distinctly different from zero.

Part of this phenomenon might be explained by the inappropriate use of multipliers in ex-ante estimates as the assumptions behind the construction of these multipliers do not tend to hold for mega-events or even other major professional sports endeavors. Given the specific dynamics of these activities and their sheer scale, the use of multipliers fails to account for leakages and the strategic response of stakeholders to what is considered to be a temporary demand shock on labor.

It should be noted that even though there's very little ex-post evidence that supports the promotional claim that these activities generate new employment; these arguments are regularly touted by events promoters. Siegfried and Zimbalist (2002) claim that a simple answer for this is that job creation is a persuasive argument, even if an incorrect one. This is the case because the creation of jobs is perceived as an easily verifiable benefit to those who are most needy - the unemployed - which may have strong appeal for much of the public.

1.3. Revenues

Another assumption made in promotional studies is that the event may facilitate the flow of different sources of revenues towards the host region. These mechanisms could be classified as (i) event-specific revenue from ticketing, merchandising and broadcasting and (ii) event-related expenditures made by tourists and locals on accommodations, transport, food and beverages. In theory, it could be argued that these events could lead to increased tax collection both from sales associated with the event and from sales not necessarily directly related to the event. Furthermore, the more optimistic ex-ante studies posit that this added economic activity can become "the new normal" after the event and can be sustained over time.

i. Event-specific revenues

The flow of event-specific revenues to local and national governments is minimal or nonexistent. It is widely known that the supranational organizations overseeing the events have the rights to most, if not all, revenue generated through ticketing, merchandising and broadcasting. For instance, starting in the 2010 World Cup cycle, FIFA stopped sharing broadcast, sponsorship, merchandising or ticketing revenues with hosts. FIFA now covers an agreed upon operational budget, but keeps all these sources of revenue.

For the four-year cycle that included the 2014 World Cup in Brazil, this meant that FIFA received USD 5.14 billion in World Cup-related revenue while it incurred USD 2.22 billion

of World Cup-related expenses. Only USD 453 million of these expenses represented contributions to the local organizing committee. Furthermore, as previously mentioned, these contributions were meant exclusively to cover other operational expenses and they do not entail any form of profit sharing system.

In the case of the four-year cycle that included the 2010 World Cup in South Africa, FIFA received USD 3.89 billion in World Cup-related revenue and incurred USD 1.30 billion of World Cup-related expenses. Meanwhile, its contributions to the local organizing committee totaled in USD 226 million. This means that on average, for the last two cycles, FIFA's World Cup-related revenue has been 2.6 times its World Cup-related expenditure and almost 20 times its contributions to the host's organizing committee.

Though to a lesser degree, Olympic hosts also fail to fully reap the revenues generated by the event. According to the 2014 Olympic Marketing Fact File (International Olympic Committee 2014), the IOC manages broadcast partnerships, the Olympic Partnership (TOP) worldwide sponsorship programme and IOC official supplier and licensing programme. The local organizing committees are left to manage domestic sponsorship, ticketing and licensing programmes. However, the IOC does make a contribution from the revenues raised through broadcast agreements and sponsorship program to support the Olympic Games.

If this IOC contribution is taken into account as a revenue sharing mechanism, then you could argue that the IOC shared with the Local Organizing Committee of the 2012 London Olympics approximately two thirds of total revenues. Nonetheless, under this current revenue sharing agreement, the London Organizing Committee, which mainly deals with operational costs and not infrastructure investments and other key expenses, just managed to break even. Zimbalist (2015) argues that was only possible due to a USD 1.67 billion infusion of public funds.

What perhaps is more troubling is that even if revenues were shared in a radically different way the net benefit might still be negative for hosts. For the 2012 London Olympics, the non-organizing committee budget for associated infrastructure work and other costs reached approximately USD 15 billion, most of which was public money (International Olympic Committee 2012). Meanwhile, the total revenues originating from the Olympics were approximately USD 5.5 billion, indicating that the non-organizing committee budget would be 2.7 times the total revenues. Once organizing expenditures are considered, the cost of hosting the London Olympics was 3.7 times all revenues generated by it.

There is a similar case to be made for the Brazil World Cup, which generated total revenues around USD 5.14 billion and required public investment somewhere between USD 10 and 15 billion. Similarly, the 2008 Beijing Olympics generated revenues of around USD 5 billion and, though this allowed for a reported operational profit in excess of USD 150 million, the infrastructure buildup associated to the event has been estimated on USD 40 billion. That is over eight times the total revenue generated. The 2010 South Africa World Cup is one of the few recent instances in which the total revenue generated by the event (USD 3.89 billion) was marginally larger than the total reported public investments (USD 3.5 billion). Even in that instance, once FIFA expenses are considered (USD 1.3 billion); the event comes at a net-loss if one disregards distributional considerations.

In essence, there appears to be two major issues with respect to event-specific revenues. First, in the case of the World Cup, the majority of these revenues are simply not shared with hosts. For the Olympics, somewhere between half and two-thirds are shared with hosts, despite the fact that they are burdened with onerous capital investments as part of their winning bids. Second, even if revenues were shared radically different and hosts were able to accrue the totality of the revenues generated, these might not be able to cover the expenses required to host the event. In the most extreme recent examples, total revenues might represent between 10% and 30% of the total cost of hosting a major sporting events. Hence, any revenue-related benefit for hosts is unlikely to emanate from direct event-specific revenues and would be contingent on other secondary sources of revenues.

ii. Event-related expenditures

In addition to event-specific revenues, it is argued that hosts might stand to benefit from additional spending associated with the event. Examples of these types of expenditures might include items such as consumption of food and beverages in the arena and additional parking or transportation investments. Also, it could be argued that the festive mood around the event would influence locals and visitors not necessarily attending the event to increase spending in other social and leisure activities loosely associated to the event itself.

According to Feddersen and Maennig (2010b), there are a number of studies that have focused on taxable sales or sales tax collection data in order to understand the impact of mega-events. The prevalence of these studies is partly because of the quality of these data. When available, this type of information tends to be collected at a finer geographic disaggregation and in shorter time frames. It is also generally collected with more precision and with a clearer connection to sports facilities and events. Additionally, according to Matheson (2006), this type of data serves as a good indicator of economic well-being as it represents 40% of overall economic activity. The approach used in these studies might serve as the best available proxy to understand the impact of mega-events on event-related expenditures.

Allmers and Maennig (2009) examined the effects on retail sales from the 1998 France World Cup and the 2006 Germany World Cup but failed to find any statistically significant impact. Along the same lines, Porter and Fletcher (2008) studied the 1996 Atlanta Summer Olympic Games and the 2002 Salt Lake City Winter Olympic games and found no significant impacts on taxable sales.

Similarly, Baade, Baumann and Matheson (2005) conducted a detailed regression analysis of taxable sales in the state of Florida in the United States between 1980 and 2005 to estimate the impact of large scale sporting events on economic activity.

During this period, the authors evaluated four metropolitan statistical areas (Miami-Fort Lauderdale-West Palm Beach, Tampa-St. Petersburg, Orlando and Jacksonville) and 19 major sporting events (seven NFL Super Bowls, two NHL Stanley Cups, two NHL All-Star games, two MLB World Series, two NBA All-Star games, one NBA Finals, one NCAA Men's Basketball Final Four, one MLS All-Star game and one set of games of the 1994 World Cup). The authors used the change in taxable sales in the specific metropolitan statistical area as a percent of the taxable sales in the rest of Florida as their measure of impact. If mega-

events have a positive impact on a region's economy, we would expect to see a consistent pattern of increasing taxable sales periods around these events.

According to the Baade, Baumann, and Matheson (2005), 12 of the 19 events, including the World Cup, had in fact a negative coefficient, indicating that the taxable sales ratio fell below predicted levels during the period in which the event took place. Overall this corresponds to a decrease in taxable sales of USD 34.4 million (in 2004 dollars) per event in a given metropolitan statistical area during this 25 year period. It should be noted that, none of the events had a statistically significant impact different from zero at 5 percent, so the results should be interpreted with care.

Baade, Baumann and Matheson (2010) also performed an analysis of taxable sales in Salt Lake City during the 2002 Winter Olympic Games. The authors found that some industries experienced a statistically significant increase in taxable sales, namely hotels (USD 51.9 million) and restaurants (USD 18.7 million). However, these gains are likely offset by losses in other industries. For instance, the authors point to a statistically significant loss in taxable sales at general merchandise stores of USD 167.4 million.

Overall, for the 2002 Winter Olympic, there was no statistically significant relationship between the event and taxable sales. This indicates that, even though some industries might stand to benefit from a major event, the overall impact might be neutral or even negative. Their results also suggest any impact would be demonstratively smaller than the purported investments associated to the event. It is important to note that the distributional impact across industries might heavily influence the incentives for key players in these beneficiary industries to actively promote mega-events.

These studies agree that the impact of mega-events through retail sales is not statistically significant. However, these findings might seem counterintuitive given the level of activity that is usually perceived around these major sporting events, a perception that is taken as a fundamental assumption for *ex-ante* studies. Matheson (2006) argues that there are three theoretical limitations to these *ex-ante* assumptions: the substitution effect, crowding out and leakages. Of these, the substitution effect and crowding out limitations might be particularly useful to make sense of the counterintuitive results with respect to sales.

The substitution effect occurs when individuals in the local economy spend money on a mega-event rather than in other goods and services. It is likely that individuals have a limited budget determined prior to the event destined towards entertainment and leisure. When they spend on the mega-event, they re-allocate it from other activities. Even when some individuals reallocate from other parts of their budget towards mega-event consumption, it is unlikely that overall savings rate of the local economy will change as a by-product of the event. Hence, rather than a significant increase in taxable sales, what is likely to occur is a redistribution of existing local sales.

This issue can be compounded with what has been described by Meannig and Du Plessis (2007) as a "couch potato" effect. The "couch potato" effect describes what happens if local consumers actually reduce their regular consumption as a consequence of the event. Perhaps they choose to work from home, avoid the areas where the event is taking place or even leave town in order to reduce their exposure to traffic, big crowds or potential price gouging during the event. It might also be the case that substantial areas of retail districts

are cordoned off during the event for security concerns or just become too busy for regular customers. When considering the substitution effect and the “couch potato” effect, it is easier to understand why mega-events might have a neutral or even a negative effect on retail sales, when primarily considering local attendees. Therefore, if there is to be any positive impact on retail-sales, this depends on expenditures made by visitors.

As a matter of fact, Coates and Depken (2011) argue that the impact of bigger events may be contingent on the interaction of two offsetting behaviors. On one hand, more visitors come to view the event, which can increase local spending. On the other hand, locals might be influenced to avoid the event or leave town altogether, which would put downward pressure on local spending. If local spending falls faster than external spending from out-of-town increases, the net impact of the event would be negative, even if the gross spending associated with the event was high.

Barget and Gouget (2013) provide further evidence on the importance of foreign spectators' expenditure. These authors argue that one of the key determinants of regional disparities of impact for the 2007 Rugby World Cup in France was the structure of the nationalities that attended matches in a region. More precisely, the authors state that regions that were able to attract foreigners with high income and high level of expenditure (whether because they hosted top matches or matches featuring the home country of these foreigners) would perform considerably better.

Here's where Matheson's (2006) crowding out effect comes into play. According to him, mega-events can cause a sense of congestion that might discourage regular visitors from coming to a city during that time. Many major events are hosted in regions that are already popular destinations and that tend to be at or near capacity during peak seasons (generally the time mega-events are hosted in the northern hemisphere). This might cause event visitors to replace regular visitors rather than generate new ones.

The directional impact of the crowding out effect is uncertain since it depends on the consumption patterns of mega-event visitors compared to traditional visitors. However, given that for some events (such as the World Cup) part of the travel expenditure of the visitors is appropriated by supranational organizations (i.e.: FIFA) through ticketing, it stands to reason that the net impact for hosts might be neutral at best or even possibly negative.

Furthermore, Leeds (2008) studies the spillover effect of the 2002 Salt Lake City Winter Olympics to the neighboring ski industry in Colorado. He found that these games added over USD 160 million in net retail sales to the economies of the sixteen Colorado counties with ski resorts. The author argues that, while the games did little for the economies of Salt Lake City and Utah, it had a large positive impact on neighboring Colorado through a displacement or crowding out effect. Visitors that would have traditionally gone to Salt Lake City for skiing purposes might have chosen to avoid this destination during the Olympics, choosing instead to go to Colorado. This would allow Colorado to free-ride on Salt Lake City's Olympics. Therefore, Salt Lake City not only failed to reap the benefits of the Olympics but might have even supported a competing ski destination. Even though these findings do not relate to the World Cups or Summer Olympics, they might be very informative about the underlying dynamics of large sporting events.

Some recent policy trends might complicate this issue further. As stated previously, the substitution effect and the “couch potato” effect significantly increase the relevance of foreign visitors in order to promote net impact on sales. However, during the 2014 World Cup in Brazil, only 69% of tickets were sold directly to the general public, two-thirds of which went to Brazilian residents. This was partly due to the fact that organizers had made a substantial number of tickets available exclusively to Brazilian residents, potentially to promote local support for the games. While this may be seen as “fair” given that Brazilian nationals would end up paying for the event, the additional revenue that could’ve been generated through foreign visitors’ expenditures was likely severely constrained by this policy.

To sum up, there’s little evidence to support the thesis that mega-events trigger substantial increases in event-related sales. Even though gross sales during the event might be very high the net impact might be contingent on the scale of the substitution effect, the “couch potato” effect, the crowding-out effect and the subsequent consumption patterns of event visitors. Therefore, it is more likely for an economy to see a distributional impact of expenditure across industries than an increase in sales overall. More so, recent trends raise concerns that the impact through this channel could in theory end up being negative for host regions.

iii. Tax collection

If there’s a lack of evidence signaling significant positive impact of mega-events on direct and indirect revenues, then we shouldn’t be able to find significant evidence suggesting a relevant increase on tax collection. On the contrary, there’s a possibility, given some of the requirements put forth by organizations like FIFA and IOC, that hosting some mega-events hampers tax collections.

De Nooij, van den Berg and Koopmans (2010) write that FIFA requests organizing countries to extend a tax exemption for all its activities. More specifically, according to *Forbes*, FIFA requires a comprehensive tax exemption for the organization and further parties involved in the hosting and staging of the event. This exemption includes corporate taxes, income taxes, value added taxes and all other forms of taxation. During the 2014 Brazil World Cup, this generated some resistance as Brazil’s Internal Revenue Service estimated that these exemptions for FIFA would cost the country USD 250 million in lost revenues. Others estimate the figure to be twice as large.

The IOC also requires some special tax treatment. According to Zimbalist (2015), this includes tax exemption on earnings of corporate partners and foreign nationals participating in the Olympics. In the case of the 2012 Summer Olympic Games, Hunt (2012) estimated the cost of these exemptions to the British treasury at USD 130 million.

It should be noted that, given the non-profit status of organizations like FIFA and the IOC, it is likely that the surplus generated as part of their activities would be considered tax exempt in most countries regardless of the requirements they impose. This makes the calculation of these estimated lost taxes particularly difficult. However, these exemptions are not limited to activities strictly related to the event such as broadcasting rights or ticket sales. It also extends to other more peripheral activities such as hotel rooms rented

through FIFA. This is important, because unlike broadcasting rights and ticket sales, the host would have been able to collect taxes on those hotel rooms in absence of the event. De Nooij, van den Berg and Koopmans (2010) state that FIFA claims approximately 60,000 rooms for itself, the media and sponsors for the duration of the event, which on its own could easily account to more than USD 25 million in foregone tax revenue.

In summary, there is no available *ex-post* evidence that demonstrates that mega-events trigger increases in tax collections. Furthermore, tax exemptions extended to supranational organizations and their partners might tilt the distributional balance of revenues further in favor of these organizations over the hosts. Lastly, given that these exemptions are not exclusively limited to event-specific activities or operational surplus, they might result in a net loss in tax revenues for hosts.

iv. Sustained long-term impact

Given the lack of substantial evidence to back-up the claim of impact on short-term direct or indirect revenues, it is unlikely that there would be evidence to substantiate sustained long-term impacts on this front. In fact, there are not many studies that tackle this question.

von Rekowsky (2013) reviewed this sparse literature on mega-events between 1990 and 2010 and found no meaningful lasting economic benefits as a by-product of hosting the event. The author posits that one potential explanation for this might be that mega-events investments do not tend to tackle the underlying binding constraints limiting growth; hence it is unlikely to significantly alter the long-term outlook of the host region.

Lastly, Billings and Holladay (2012) analyzed the long-term impact of hosting mega-events for all Summer Olympics between 1956 and 2004. The authors controlled for the self-selection of cities that host these types of events by using a difference-in-difference methodology leveraging other finalist cities as a control group. After this, they don't find any statistically significant long-term impact on measures of real GDP per capita. In this case, the authors argue that host cities likely lose any potential long-term benefits during the competitive bidding process as the investments required to win a bid and costs associated to carry out the preparation might be larger than the purported benefits. It should be noted that even though in the aggregate these investments and expenditures seem to do away with the potential benefits, some investments associated to the event might have potential positive impact (i.e.: improved transportation). Further research on this might be beneficial for policy purposes.

While there aren't many studies on the long-term impact of mega-events, the few that are available do not provide evidence that these events have a positive long-term effect on economic activity. Furthermore, these studies tend to argue that the investments and expenditures carried out in preparation of the event seem to outweigh the benefits and do not tackle structural constraints of the economy, hence tend to be on average unproductive investments.

Summary

The vast majority of the literature on mega-events fails to find evidence between mega-events and increased economic activity, whether directly or indirectly in the short-term or

long-run.

With respect to direct impact, there appears to be two major issues. First, host regions do not receive a large portion of the potential revenues, despite the fact that they are significantly burdened with capital investments in order to prepare for the event. Second, even if hosts were able to accrue the totality of the revenues generated, these might not be able to cover the expenses required to host the event, much less generate additional positive economic impact.

There are also a number of reasons to question indirect impacts. With respect to increases in event-related sales, the literature seems to signal more towards a shifting of expenditures across industries than an increase in sales overall. More so, recent trends focused on limiting ticket sales to local patrons raise concerns that the impact through this channel could in theory be negative for host regions. Similarly, there is no available *ex-post* evidence that demonstrates that mega-events trigger increases in tax collections or that these events generate lasting long-term impact.

Overall, the supposed economic benefits of hosting an event are vastly overstated in *ex-ante* studies. In practice, the real benefits are outweighed by the costs associated with the event preparation. This has a number of implications for revenue sharing schemes, ticketing policies, tax benefits for supranational organizations, and bidding process and requirements.

Section 2. Increased Tourist Arrivals

In light of the evidence undermining the argument that sports events have a broad positive economic impact, some argue that perhaps the impact of mega-events is more apparent in the performance of a specific industry like tourism.

More precisely, mega-events are presumed to positively influence tourist arrivals and potentially tourist spending. The mechanism through which this potential impact would occur is complementary to the one previously described as it is expected that tourists make up a significant part of the event-related expenditure.

In this case, the assumption is that tourists that otherwise wouldn't have visited the region decide to do so in order to attend the event. Furthermore, these event-related tourists would not only spend money in lodging and other leisure activities, as other tourists would do, but presumably they would also spend a sizable amount in ticketing, merchandising and memorabilia related to the event. For instance, according to surveys led by Brazil's Ministry of Tourism they estimated that foreign tourists visiting the country for the World Cup would attend on average four World Cup matches and spend around USD 2,500 during their stay in Brazil. The tourism ministry estimates that these visitors would add USD 3.03 billion to Brazil's economy. Moreover, the Minister of Tourism Vinicius Lages argued that the impact of these expenditures could "double the anticipated figure if we consider the multiplier effect of these resources in the Brazilian economy."

Additionally, the thinking is that these event-related tourists would go home and recommend visiting the country to friends and family, hence expanding the future base of

tourists. For instance, Embratur, the Brazilian tourism board, reported that over a million foreign visitors from 203 countries visited Brazil for the 2014 World Cup. According to a survey, 95% of them indicated they would return to the country for a holiday. This would facilitate Brazil's goal of doubling the yearly number of foreign visitors by 2020.

It is also expected that the substantial TV coverage around the event would expose the host's culture, natural beauty, and tourist opportunities to a worldwide audience. In theory, this would improve its reputational standing as a global destination and potentially attract new tourists for years to come. More precisely, according to FIFA, 98,087 hours of broadcast were dedicated to the 2014 FIFA World Cup across 207 territories, reaching a global in-home television audience of 3.2 billion viewers. Similarly, according to the IOC, there were 99,982 hours of global broadcast devoted to the 2012 Olympic Games across 220 territories reaching a projected 3.6 billion viewers.³ FIFA, the IOC, and host country tourism ministries assume that such extensive exposure to the region would motivate future travelers to visit the mega-event host.

Finally, it is assumed that the preparation for the event would serve as a prime opportunity to invest in tourism-related capacities, such as improved airports, public transportation systems, and hotel offerings. Similarly, it would also serve as an opportunity to acquire certain management and language capabilities that could also serve as a competitive advantage vis-à-vis other potential destinations. For instance, Education First, the Brazilian Olympic Committee and the Brazilian Ministry of Education partnered in an effort to teach 1 million people English before the 2016 Rio Olympics.

There are a number of ex-post evaluations geared towards addressing the claims of positive tourism effects. For the majority of these, ex-post findings differ significantly from ex-ante predictions as there appear to be some structural constraints limiting the impact of this type of event on tourism activity.

2.1. Increases in the number of visitors and tourism spending

Increased tourist attraction is a common feature of ex-ante estimates of the impact of mega-events. The case of the 1992 Barcelona Summer Olympics and the reinvention of the city as a major European tourist hub are consistently touted as the primary example of leveraging mega-events for long-term tourism growth.

According to Zimbalist (2015), the growth of bed nights⁴ in Barcelona between 1990 and 1994 outperformed the growth of all major European cities during that period. Furthermore, this trend has continued even after this period. This stellar performance is commonly attributed, particularly in the sports industry, to the 1992 Summer Olympics.

However, besides the case of Barcelona, the host city or country's experience regarding tourism appears to be mixed at best. During the 2008 Olympic Games in Beijing, the number of bed nights dropped 39% on a year to year basis (ETOA 2010). Similarly, the

³ It should be noted that viewers are defined as those that saw at least one minute of coverage on television. According to the IOC 74.4% of viewers that saw one minute of coverage continued to watch for at least 15 consecutive minutes.

⁴ The number of tourists multiplied by the average number of nights per tourist

2012 London Olympics, the 2010 Vancouver Winter Olympics and the 2002 South Korea World Cup have been associated with a net decrease in the number of foreign visitors. Meanwhile, the Brazil 2014 World Cup and Sydney's 2000 Olympics have been associated with a gross increase of foreign visitors (Zimbalist 2015).

From these raw numbers, it is unclear if the events themselves influenced tourism growth or simply happened to correlate without major causal relations. It should be noted that many host cities are attractive tourist destinations even without mega-events, which may be pursuing long-term tourist strategies to enhance or sustain the flow of tourists independently of the mega-event. Furthermore, international travel is bound to be greatly impacted by exogenous causes (i.e. global economic cycles, terrorism concerns, health epidemics, etc.) that may confound the results. Disentangling the specific impact of mega-events from these alternative explanations is precisely the goal of ex-post evaluations.

The majority of these evaluations have tried to outline the impact that a specific mega-event had on a specific region at a specific point in time. Others studies have tried to answer these questions in a broader fashion and have attempted to understand the average effect of these types of events across a number of different contexts. These different types of studies provide different, yet perhaps complementary insights.

i. Event-specific evaluations of the impact of mega-events on tourism

The majority of event-specific evaluations aren't optimistic. Porter and Fletcher (2008) found no statistically significant change in hotel occupancy or airport traffic during the 1996 games in Atlanta. They only found significant increases in hotel rates, many of which were not local chains and hence syphoned resources away from the host economy. Edds (2012) finds that the 1992, 1996 and 2000 Olympic Games did not have a positive impact on change in tourism GDP in states or regions where the Games took place when compared with similar regions without the events. Gruben, Moss and Moss (2012) find no statistically significant increase in American air passengers to the host cities of the Summer Olympics in 1992, 2004 and 2008 as well as the Winter Olympics in 2006. This is significant since the United States is the main media market of the Olympics and one of the largest global sources of international tourists. They do find increased travel to the host city of the 2000 Summer Olympics and the hosts of the 1992, 1994 and 2010 Winter Olympics. However, in all these cases, the impact is short-lived and is not sustained after the games have passed.

In this same vein, it appears that even when the ex-post studies do find some positive impact, these generally fail to live up to lofty pre-event expectations. Allmers and Maennig (2009) fail to find a statistically significant impact on overnight hotel stays or national tourism income during the 1998 France World Cup. For the case of the 2006 Germany World Cup, they do find a statistically significant impact on foreign hotel nights (700,000 additional nights). However, this translated to approximately 100,000 hotel tourists, which falls significantly short of the 3.3 million foreign tourists estimated by the German Hotel and Catering Association.

du Plessis and Venter (2010) estimate the impact of tourism arrivals and expenditures associated with the 2010 World Cup in South Africa to be 0.1% of GDP, which is sobering compared with estimates prepared by the consultancy group Grant Thornton, which had

projected the event to generate an impact equivalent to 3.6% of GDP. Similarly, Matheson, Peeters and Szymanski (2012) estimate that up to 390,000 foreign visitors traveled to South Africa in June and July of 2010 for the World Cup. Out of these, 210,000 are estimated to have originated outside of the Southern African Development Community and thus represent the type of high-spending tourist modeled in typical ex-ante studies. While impressive, even these results fall short of the Grant Thornton estimates of over 480,000 international visitors.

In general, the pre-event estimates of visitors are regularly overestimated. According to Zimbalist (2015), Athens received only 13% of the daily foreign tourists it anticipated for the 2004 Olympic Games. South Korea only received 63% of its estimates for the 2002 World Cup and Sydney 75% of its estimates for the 2000 Olympics. What could be causing this systematic overestimation?

The literature on the subject argues that ex-ante estimates tend to underestimate displacement effects of the mega-event. It posits three possible problems with ex-ante estimates: (i) time-switching or temporal displacement, (ii) crowding out or destination displacement and (iii) pricing-out.

First, Matheson (2006) defines time-switching as the behavior of visitors that had plans to visit a destination at some point in the future (i.e.: a long-desired vacation, a business trip, etc.), but decided to switch the date of those future plans in order for their travel to coincide with the mega-event. Even though these travelers indeed scheduled their visit at the time of the mega-event, it is hard to argue that these new visitors were spurred primarily due the event since these tourists had previously planned their visit to the region. du Plessis and Maennig (2010) state that the additional visitors attending the 2004 Euro Cup in Portugal and the 2006 World Cup in the months of June and July were offset by lower number of visitors in other months. They interpret this as a sign of strategic time-switching by some visitors.

Secondly, with regards to crowding out, Matheson (2006) describes it as crowds caused by the mega-event which discourage regular or would be visitors from making a trip to the host region during the event. Matheson (2006) argues that the vast majority of destinations chosen as hosts for mega-events are on their own right tourist hotspots.

Moreover, events like the World Cup and the Summer Olympics are usually held at some point between the months of June and August, which is usually considered as a peak season for a number of travel destinations. Winter Olympics also fit this pattern since they coincide with peak travel periods to winter resort destinations. Hence, the intuition behind the crowding out hypothesis is that these events tend to occur when the host destinations are at capacity. As a result, in order to accommodate for event-specific tourists, some regular visitors might be displaced.

One concrete example of this type of behavior was mentioned in the previous section. More precisely, Leeds (2008) studied the spillover effect of the 2002 Salt Lake City Winter Olympics to the neighboring ski industry in Colorado. He found that these games added over USD 160 million in net retail sales to the economies of the sixteen Colorado counties with ski resorts. According to the author, visitors that would have traditionally gone to Salt Lake City for skiing purposes, might have chosen to avoid this destination during the

Olympics and allowed Colorado to free-ride on Salt Lake City's Olympics.

Thirdly, regarding pricing-out, Porter (1999) argues that input suppliers tend to increase prices in response to higher levels of demand. This creates downward pressure on the total number of visitors. The argument is that when faced with additional tourist demand, instead of substantially expanding capacity, providers, such as hotels and airlines, instead strategically hike prices. Higher prices allow them to extract more revenue from the visitors that do make the trip, but they also price out a number of would be visitors. This might make sense for tourism providers as these mega-events have duration of just a few weeks that simply may not warrant a long-term expansion in capacity.

This strategic response, even though potentially worthwhile for individual economic agents, is perceived to be detrimental to the local host economy as these price hikes are not associated with "multiplier spending". In practice, the added revenue generally tends to go towards profits for transnational hotel chains and airlines and not to increased salaries, investments or intermediate demand in the local economy.

In a review of the 1996 Summer Olympics and the 2002 Winter Olympics, Porter and Fletcher (2008), argue that the majority of the increased demand spawned by the mega-events was absorbed by the hotel industry via price increases. They estimate that hotel rates in Atlanta increased by 43% and those in Salt Lake City increased by 140%.

du Plessis and Maennig (2011), also studied this phenomenon, and argue that price hikes in flights and hotels for the 2010 World Cup in South Africa had an adverse effect on tourism. The authors argue that prices for flights to South Africa during the dates of the tournament were three times higher than normal bookings made between January and March of 2010. Even after they dropped substantially later on, they remained 50% higher than normal. They find evidence for similar pricing strategies in accommodations and car rentals where rates doubled or tripled. Given the slack in the local labor market, these increased prices did not translate to increases in salaries, but rather likely translated into profits for capital owners. Overall, the authors argue that these pricing strategies, which may have been motivated on their own by overly optimistic ex-ante estimates and not even real demand, likely dampened the total tourist demand and caused South Africa to miss out on the opportunity of reaching a broader base of potential visitors. According to du Plessis and Maennig (2011), this might be construed as a self-defeating prophecy since overly optimistic ex-ante estimates lead to strategic price hiking which in turn reduces overall tourist demand and causes the host region to fall substantially short of the expected tourist inflow.

In conjunction, these three possible explanations can shed some light on the fact that even when individual events do have statistically significant impact on tourism these routinely fall way short of the preceding expectations.

ii. Cross-country evaluations of the impact of mega-events on tourism

Recently, there have been a number of cross-country studies evaluating the impact of mega-events on tourist arrivals. Unlike event-specific, ex-post evaluations, these efforts attempt to go beyond the specific circumstances of a given event and try to identify overarching trends around mega-events. The evaluations carried out so far seem to be

particularly informative on two areas: (i) temporality and the direction of the impact of mega-events on tourism and (ii) conditions that influence the size of the impact.

Regarding the temporality and direction of the impact, Fourie and Santana-Gallego (2011) estimate the effects of six sporting events (the Summer Olympics, the World Cup, the Winter Olympics, the Cricket World Cup, the Rugby World Cup and the Lions Tour) during the period between 1995 and 2006. They address 18 mega-events in total.

They find that on average a mega-event is associated with an 8% increase in tourism in the same year of the event. However, the results for each type of event are not the same. When teasing out the results for each type of event, the picture becomes a bit murkier. For instance, on average, hosting the Olympics is associated with a 15% increase in tourism; double that of an average mega-event. This is mainly driven by a 43% increase in tourism in Australia associated with the 2000 Sydney Olympics. Meanwhile, the 1996 Atlanta Olympics had a negligible impact in tourism for the United States and the 2004 Athens Olympics was associated with a 30% decrease in tourism for Greece. Similarly, the impact associated with the three World Cups in the database is not consistent.

Therefore, even though on average the impact might be positive, there appears to be significant volatility which signals that certain context-specific variables might have a significant impact on the end-result.

With respect to temporality, Fourie and Santana-Gallego (2010) make an insightful finding that on average the “legacy” of mega-events materializes before the actual event. The authors don’t find evidence for statistically significant increases the three years following a mega-event, but they do find significant increases in the three years preceding an event. According to the authors, all things being equal, predicted tourism is 4 per cent higher three years before the event, 7 per cent two years before and 16 per cent the year before the event.

Teasing out the temporality question further, Song (2010) conducted another cross-country study considering the Olympics between 1950 and 2008 and found that the tourism boost of the Olympics is short-lived. It is primarily concentrated on the four years before and after hosting the event, which is consistent with Fourie and Santana-Gallego (2011). Nonetheless, Song (2010) also found that, in the long run, this impact not only vanishes but ends up being negative, which has profound implications for the way mega-events are expected to be leveraged for tourism purposes.

With respect to the question of conditions that influence the size of the impact, Fourie and Santana-Gallego (2011) make three important contributions related to (i) the source of tourist flows, (ii) seasonality and (iii) differential economic development. First off, the authors find that the vast majority of tourist inflows come from countries participating in the event. All else being equal, the authors find an estimated gain of 24% on tourist arrivals from participating countries and no significant difference from countries not participating. This is a relevant finding as the participant countries - and their performance in the tournament - is determined by factors completely outside the host's control. For instance, Fourie and Santana-Gallego (2015) posit that the fact that France gained a last-minute, controversy laden, classification to the 2010 World Cup had an impact equivalent to 6,200 new jobs being created in the local economy. Put differently, a relatively random

occurrence, such as scoring a last-minute dubious goal, allowed France to secure a berth for the World Cup in South Africa. This seemingly random event, radically altered the profile of the type of tourists that would be traveling to the 2010 South Africa World Cup, as would-be visitors from Ireland, were substituted by would-be visitors from France. Given the differences in size and spending patterns between these two countries, this ended up being associated with a significant effect on the performance of the tourism sector in South Africa, which highlights how fickle these relationships can be.

Fourie and Santana-Gallego (2011) also find that hosting an event during peak season is associated with a 6% expected reduction of tourist arrivals, while hosting an event off-season is associated with a 16% expected increase of tourist arrivals. This finding might provide additional evidence for the previously mentioned crowding out hypothesis. It might also help explain the vast disparity of predicted results between the Athens Olympics, which were held in Greece's peak season, and the Sydney Olympics, which were held in Australia's off peak season.

Lastly, regarding differences in economic development, Fourie and Santana-Gallego (2011) find that even though both OECD and non-OECD countries stand to benefit, *ceteris paribus*, from additional tourist inflow the year of the event, this impact might be larger for non-OECD countries (15%) than for OECD countries (9%). It is worth mentioning that there might be some selection bias baked in this result as OECD are more likely to host events with less tourist impact like the Winter Olympics and are more likely to host events in peak-season. Therefore, these last findings should be interpreted with particular caution.

Overall, these cross-country studies help make sense of much of the variance present in the event-specific studies, identify some of the underlying causes behind this variance and achieve a better understanding of the long-term implications of these types of events.

Summary

The case for increased tourist visitors and subsequent spending seems to be a mixed bag. While there does appear to be some evidence for statistically significant increases on tourist arrivals on some specific events, the results tend to be substantially lower than those predicted by *ex-ante* studies.

It seems as if *ex-ante* studies consistently underestimate the effect of three distinct sources of tourist displacement: (i) time-switching, (ii) crowding out and (iii) pricing out. Failing to appropriately incorporate these phenomena into the predictions, leads to an overshooting in the estimate of net new tourists and their inherent "multiplicative effect." This may overstate the potential impact of the mega-event and turn it into a self-defeating prophecy.

Furthermore, according to the existing literature, the effect on the mega-event on tourism is short-lived. It is primarily concentrated in the four years before and after the event. In the long-run, this effect disappears and might even turn negative.

Lastly, it seems as if certain conditions have a significant influence on the increase of tourist visitors associated to a mega-event. Among others, these include: (i) the type of event, (ii) the seasonality or timing of the event and (iii) the participant countries.

2.2. Image enhancements

Another potential benefit that is routinely mentioned by mega-event promoters focuses on the international perception of the host city. Mega-events attract massive global audiences and increasingly fill up news feeds as the event grows nearer. As mentioned previously, 98,087 hours of broadcast were dedicated to the 2014 FIFA World Cup across 207 territories, reaching a global in-home television audience of 3.2 billion viewers. Similarly, 99,982 hours of global broadcast time were devoted to the 2012 Olympic Games across 220 territories, reaching a projected 3.6 billion viewers.⁵

Mega-event promoters argue that this substantial exposure can be strategically leveraged to increase awareness of the host region as a destination and improve its global brand. Hence, promoters argue that, beyond the short term flow of tourists, hosts might become more competitive tourist destinations in the long term.

Ritchie and Smith (1991) produced one of the first studies on the relationship between mega-events and image enhancements. The authors evaluated the effect that the 1988 Calgary Winter Olympics had on the image of the city in two main markets: the United States and Europe and found that there was a significant increase on the awareness of the city and an important shift the way city was perceived by potential visitors.

In this same regard, Allmers and Maennig (2009) considered the potential branding impact that the 2006 World Cup in Germany had on the "Anholt Nation Brands Index" (NBI). This index is based on a quarterly survey that classifies nations on a number of qualities such as cultural, political, commercial and human assets as well as investment potential and tourist appeal. They find that when comparing 2006 to 2005 Germany improved in all the elements of the NBI. It is interesting they find that the biggest improvement was found around the statement "This country excels in sport." This could have been spawned either by the successful hosting experience of Germany, the performance of their national team, or both.

However, studies also show that these good signs should also be taken with caution. Solberg and Preuss (2007) argue that the promotion effect generated by the mega-event might be short-lived and hence attracting new tourists after the events have passed might require significant investments. Similarly, Ritchie and Smith (1991) state that changes in perception and awareness tend to be ephemeral, and hosts should anticipate a high rate of image decay after the event and hence should be ready to act proactively if they wish to sustain the exposure gained during the event. Oldenboom (2006) confirmed these concerns in his study on Euro 2000 in Belgium and the Netherlands. He found that, even though the event raised awareness of the host cities in the short term, as many as 55% of survey respondents did not even remember the names of the host nations one year after the tournament. Only 10% of the respondents in key source countries, meaning countries from where tourists originate, such as France, Italy, and Spain, remembered where Euro 1996 had been hosted 5 years after.

⁵ It should be noted that viewers are defined as those that saw at least one minute of coverage on television. According to the IOC 74.4% of viewers that saw one minute of coverage continued to watch for at least 15 consecutive minutes.

The European Tour Operators Association (ETOA) posits that one possible explanation for this phenomenon lays on the fact that sports viewers care more about the sport itself than the location. One might argue that vast media exposure creates temporary awareness, perhaps simply because the name of the event is associated to the host region but doesn't necessarily translate into real interest towards what the host region has to offer. ETOA further argues that a similar rationale might apply to sports visitors. ETOA notes that theme parks in Los Angeles showed a decline in revenues during the Olympics and that otherwise busy tourist attraction in Sydney also saw a decline during the Olympics. These two effects actually might reinforce each other since "word of mouth" recommendations are one of the main drivers for new visitors to a destination.

Whereas previous general purpose visitors would likely focus their comments to friends and family on the traditional tourist attractions of a destination, such as natural and cultural endowments, mega-event visitors would likely relate experiences associated to the sport itself. These sports-related "word of mouth" accounts might be less informative or attractive for potential future visitors. This type of awareness might not influence the long-term perception of the host region as a destination.

An additional potential explanation for the limited image effect associated to mega-events is the conditionality of the positive perception. Allmers and Maennig (2009) hypothesize that the impact of mega-events on host regions depends significantly on how the region is able to portray itself during the event.

Some of the elements that impact this portrayal are under the control of the hosts, such as a timely delivery of stadiums, a seamless visitor experience, a spot-on logistical execution and a well-thought out marketing campaign. However, if the hosts fail in these respects, the "word of mouth" mechanism might negatively influence the image of the host regions once visitors return home.

Furthermore, other exogenous elements might negatively influence the image of the event, even if there is a good logistical execution. Terrorist threats, health scares, pollution and civil unrest are some of the factors that may fall outside the scope of an event organizing committee. All of these and that might influence negatively on the image of the host region despite an adequate event preparation. More so, the significant coverage might serve to highlight some of these issues that, in lieu of the mega-event, would have flown under the radar in international media.

Summary

The literature on image enhancement shows that there is some evidence that mega-events help boost general awareness of the host region and enhance its brand. However, this impact appears to be short-lived as hosts face intense awareness and image decay once the event has passed. This puts a significant pressure on hosts to not only execute the logistics of the event and minimize the negative impact of exogenous events, but also to proactively plan and invest to sustain the perception achieved during the event in the long term.

2.3. Building tourism capacity

One final positive outcome that is mentioned by event boosters relates to tourism capacity.

In theory, the mega-event serves as an opportunity to increase and enhance key tourism infrastructure, which in turn would allow the host region to excel in the long run as a tourist destination.

Some of the enhancements, according to event boosters, might focus on tourist enablers such as airport and transportation improvements. Additionally, other attractions, such as museums and historical sights, might also benefit from increased investment during the preparation period. However, as we previously mentioned it is very hard to argue that these public investments were carried out exclusively due to the mega-event. In many cases, these are part of a broader infrastructure or tourist agendas that happens to coincide or overlap with mega-event preparation.

Alternatively, other types of enhancements to tourism infrastructure might be more easily related to mega-event preparation. More precisely, the IOC and FIFA as part of the hosting agreement usually require certain levels of hotel capacity, both in terms of quantity and quality. Therefore, the literature focusing on the ex-post impact of mega-events on tourism capacity tends to focus on this specific variable.

As with the other mechanisms through which mega-events can theoretically impact tourism, the literature offers a cautionary tale. Enhancing tourism capacity only makes sense if the resulting stock of accommodations matches the future expected flow of tourists, both in terms of quantity and type of tourist.

As we have argued before, there is strong evidence to suggest that in absence of a well thought out and well executed long-term tourism promotion agenda, the tourism related impacts of mega-events are likely to be very short lived. Therefore, making significant investments in order to meet a brief spike in demand might prove to be a risky proposition. This helps better understand two trends observed in the most recent mega-events: price-hiking behavior by established tourism providers and the rise of temporary tourism accommodations.

Nonetheless, we have also observed in many mega-events a significant increase and change in the stock of tourist accommodations. This is partly influenced by the demands of supranational organizations like FIFA and the IOC, which impose minimum requirements on the quantity and quality of accommodations that exceed many of those that are already in place in cities. More so, there is an argument to be made that ex-ante estimates of tourism arrivals have an influence the investment decisions around the stock of accommodations. As we have argued before, these ex-ante estimates tend to be highly optimistic on the number of tourists, their spending profile, and the long-term tourism prospects, making significant investments based on these ex-ante estimates is therefore unwise.

Solberg and Preuss (2007) point out the inherent risk of over-optimism in preparation for an event. The authors argue that even when mega-events stimulate tourism, excessive optimism can lead to investments that overshoot long-term demand. Furthermore, they caution that a positive shift in supply that outweighs the positive shift in demand can make the investments unprofitable in the long-term.

The authors argue that this kind of excessive optimism has had an impact on the tourism

industry in Sydney. They state that, in the preparation period for the 2000 Summer Olympic Games (1994-2000), there was a 40% increase in hotel rooms. However, in the years following the Olympics, there was a steady decline in accommodations as many of the excess capacity rooms and hotels were repurposed for residential purposes. Similarly, employment and revenue per night fell in the years after the Olympics to levels below those found in the years prior to the event. All of these signals are interpreted by the authors as evidence that the demand after the event was too low to meet the supply shift that occurred during preparation.

Solberg and Preus (2007) also reviewed the hosting experiences of Barcelona, Seoul, and Atlanta. They found that all of these host cities experienced an increase in the number of hotel rooms prior to the mega-event, but much like Sydney, they also faced a decline in the average occupancy rate both during the Olympic year and the first years after the Games. Even Barcelona, which is generally perceived as the prime example of a host with a successful legacy, faced significant reductions in tourism in the years after the Olympics as visitor growth was unable to match supply growth. Eventually, the long-term plan paid off for Barcelona as their broader tourism strategy was able to balance the oversupply in capacity several years after the event had passed, but many hosting destinations are not so fortunate.

One of the prime examples of overshooting in accommodation capacity has been the case of Lillehammer, host of the 1994 Winter Olympics. Teigland (1999) studied this case and found the pre-event estimates of tourism growth to be exceedingly optimistic. Real growth in tourist demand associated to event was 85% below the most optimistic forecast and 55% below the estimates in the regional plans. This excessive optimism was associated with a mismatch between the supply of accommodations and actual tourism growth. After the event, the average occupancy rate in the host region fell to 40%, significantly lower than the pre-event averages. This exerted downward pressure on prices and profitability, which in turn was linked with 40% of all full-service hotels going bankrupt after the event.

Summary

The literature on increased tourism capacity as a positive byproduct of mega-events offers further caution for prospective host regions. Even though enhancing the tourism infrastructure makes sense if the resulting stock matches the expected flow of tourists, it is rather unlikely that this will be achieved solely through mega-events.

Even when mega-events provide a stimulus to visitor growth, this tends to be temporary and well below expectations. Only when enhancements in capacity are considered within a broader tourism agenda do they tend to fulfill their promise. In the absence of this broader agenda, enhances in tourism capacity, in many cases motivated by excessive optimism, can have an adverse effect in the overall profitability of the sector. Oversupply can exert downwards pressure on occupation, prices, revenue and potentially wages and employment. As the Lillehammer case demonstrates, this can have devastating impacts.

Furthermore, in light of these types of insights it might be necessary to spark a broader discussion on the pertinence of enhancing tourism through mega-event investments in lieu of other more direct promotion schemes. Teigland (1999) explored this question in his

review of the Lillehammer experience. He finds that the Winter Olympics cost on average more than 100 times the amount invested in a “focused decentralization” strategy in twenty selected destinations, but had only twice the effect on guest nights. Findings like this point to the notion that the best way to promote tourism as an end goal is to pursue direct promotion strategies rather than attempting to leverage mega-events for that purpose.

Section 3. Other Qualitative and Social Impacts

While they fall outside the scope of this paper, it is important to note that promoters and organizers have suggested that there are additional qualitative and social impacts of mega-events. We will not explore these in detail, but we will briefly outline three commonly mentioned social “legacies” of events and comment on notable ex-post findings that tease out the validity of these claims. More specifically, we will address findings related to (i) increased international business relations, (ii) crime reduction, and (iii) feel-good effects.

With respect of potential increases in international business relations, the premise organizers put forward is that mega-events raise awareness of the host’s capabilities in the eyes of potential investors and business partners around the world. The assumption here is that hosting an event triggers three important signals to new potential business partners: (i) bidding to host an event, (ii) being chosen to host an event and (iii) successfully hosting a major event.

Promoters of events might argue that even bidding for the right to host an event could have a potential positive impact as it signals to potential partners that the region is willing to undertake major investments and significant reform in order to gain international relevance or connect with the world. Moreover, selection as the actual host of the event validates the previous intent, confirms that these investments and reforms will take place in the following years, brings additional attention to other economic opportunities in the region and provides a qualitative “seal of approval” (at least in comparison to other bidding regions). Lastly, having successfully hosted the event signals inherent capabilities geared towards undertaking major endeavors.

Rose and Spiegel (2011) attempt to validate this claim by analyzing the effect that hosting mega-events has on exports and international trade. Reviewing Olympic Games between 1950 and 2006, they found a statistically significant and permanent, positive impact associated to hosting. More precisely, they found that trade is approximately 30% higher for Olympic hosts. Additionally, they argue that this positive effect extends to unsuccessful bids to host the event. Therefore, in their opinion, the main channel that triggers these effects on trade is not related to systemic changes spawned from hosting the event, but rather from others interpreting the willingness to host the event as a signal of future liberalization. The authors are nonetheless cautious and make clear that this finding does not necessarily mean that there is added merit for hosting a mega-event. They also don’t evaluate whether this mechanism for signaling liberalization is more effective than others. Song (2010) partially confirms the results of Rose and Spiegel, adding that these effects are slow to accrue but are sustained in perpetuity.

There are, however, alternative views in the literature. Maennig and Ritcher (2012) dispute these findings by arguing that they might have been driven by selection bias. In order to address this, they control for structural differences across the studied countries and in doing so they state that the “Olympic effect” on trade disappears. Similarly, Billings and Holladay (2012) failed to find any long-term impact on trade openness in their review of Olympics between 1950 and 2005.

Crime reduction is also included in the long list of potential benefits touted by organizers. Security budgets for mega-events have increased steadily in the past few decades and now tend to be well above USD 1 billion. Nonetheless, some ex-post evaluations signal that despite these massive expenditures, there is little evidence for crime reduction. For one, Baumann et al. (2012) estimate that the Olympics is associated with a 10 percent increase in crime rates in host cities. Meanwhile, Campaniello (2013) reviewed the relationship between the 1990 World Cup in Italy and crime rates at a provincial level and found that hosting the World Cup is associated with an increase in the number of property crimes and an increase in intentional personal injuries. They do not find a relationship with other violent crimes.

Lastly, event organizers often discuss “feel-good” and “happiness” effects. Orchestrating one of the most anticipated sporting events in the world, the thinking goes, might positively influence the population’s outlook not only of the event, but also of a broader range of themes. Zimbalist (2015) states that, with some exceptions, surveys confirm that the mood of the population tends to be lifted in association to the event. However, these effects tend to be temporary and disappear once the event has ended. Moreover, the exceptions to this include some rather extreme situations, as demonstrated by the significant set of protests the Brazilian government faced in the run-up to the 2014 World Cup.

These are but a few of the “legacy effects” touted by promoters and organizers. Zimbalist (2015) prepared a non-exhaustive list of potential legacy benefits as put forward by the IOC. In addition to those we’ve already mentioned, it includes (i) improved management practices, (ii) better coordination among government agencies, (iii) education benefits, (iv) public health benefits, (v) improved inclusion of handicapped persons, (vi) cultural preservation, (vii) more sustainable policies and standards, (viii) reduced racism and (ix) greater social inclusion.

There are few, if any, independent studies that validate these claims. However, Zimbalist (2015) notes, even if these claims were true, it is unclear if it makes sense to pursue these goals indirectly through mega-event investments rather than to pursue them directly through targeted, better-funded, and better-planned strategies.

Summary

While there appears to be some evidence to support the case for improved trade relations as a result of hosting a mega-event, the finding is inconclusive, as it cannot be verified with an alternative specification that controls for structural differences across countries. Likewise, “feel-good” effects are grounded in survey evidence, tend to be ephemeral, and are not without exceptions. Lastly, regarding crime reduction, the reviewed ex-post evaluations go against the expected causal relation and actually point to an increase in

criminal activity, most notably in property crime.

Overall, it seems to be that the broader question for policymakers is whether mega-events are most appropriate and cost-effective channel to pursue these qualitative and social goals.

Section 4. Implications for Potential Hosts of Mega-events

The findings of this paper have important implications for a variety of stakeholders. For the purpose of this work, we will primarily focus on how these findings might shape the decision-making of potential mega-event hosts.

The literature signals that potential hosts should be very suspicious of deriving any benefits from hosting major sporting events. In practice, the verifiable positive impacts associated to mega-events fall way short of the lofty expectations that are generated in the early planning stages. In handful of cases where these positive impacts do appear, they tend to be conditional on other factors and are mostly temporary in nature.

As we outlined before, ex-ante expectations tend to be overly optimistic and, in many cases, structurally flawed. If taken at face value, they can lead policymakers to believe that the benefits of hosting a mega-event are orders of magnitude larger than they likely are in reality.

From the previous review, we find that in a strict expense versus income calculation, the math doesn't add up for potential hosts. Non-operational costs and investments associated with hosting mega-events have been increasing exponentially in the past few decades. Now, public investment dwarfs both event revenues and resources that were theoretically previously inaccessible.

Ex-ante studies might claim that this limitation is not necessarily binding since, through a multiplicative effect, the mega-event investments positively influence the broader host economy. However, these multiplicative effects are routinely overestimated. The across-the-board increases in economic activity and employment generally predicted by these ex-ante studies are not validated by ex-post evaluations.

There are, however, some positive benefits to be reaped with respect to tourism, but these are conditional on a number of factors (i.e.: peak season, type of event, participants in the event, etc.). Moreover, they are heavily concentrated in the few years before and after the event with little to no long-term effect. Furthermore, it is rather unlikely that these temporary improvements in awareness, perception and visitor growth justify the substantial investments associated with hosting a major sporting event. Lastly, it is worth questioning if hosting mega-events is a more effective mechanism to promote tourism than direct investment in the sector.

These types of caveats are similar to most, if not all, of the purported benefits of these types of events. There is generally little evidence to substantiate them. When there is an impact, it either falls way short of expectation, is small relative to the cost, or appears less effective than alternative policy options for addressing the same goal.

This should not be taken to mean that there is absolutely no merit to hosting a mega-event. Instead, potential hosts should be mindful of the explicit and implicit costs of the event and strive to accurately compare them to the verifiable benefits. Perhaps, the best way forward is for potential hosts to determine the “right long-term price” for which hosting an event makes sense, given the limited and temporary nature of the benefits associated to it.

Investing in sports stadiums that vastly exceed local demand is not a sound investment. Neither is an infrastructure investment that connects the new stadium to an airport, but foregoes the true transport dynamics of the host region. The same can be said of enhancements to tourism capacity that fit a temporary shift in visitor profile but don't address the long-term outlook of the region. On the other hand, having a long-term infrastructure or tourism plan that is sustainable on its own right and that happens to coincide with the minimum requirements needed to host a mega-event is a different story. Making the mega-event fit the regional development strategy makes more sense than making the regional strategy fit the mega-event.

This implies that potential hosts should be both more cautious and more zealous with respect to the terms they agree to when bidding for an event. That means, for instance, host cities shouldn't agree to construct new stadiums if they do not fit the long-term needs of the host region. Similarly, it may mean no major infrastructure or capacity enhancement investments if they do not fall in line with a previously determined strategy. Lastly, it might mean a sustained push for more equitable revenue-sharing and cost-sharing schemes.

It is reasonable to presume that, given current standards, bids that are structured in this way might be perceived as less competitive. However, these types of bids will safeguard that if a host region were to be awarded the event the relationship between costs and benefits would be more sensible. Also, it is reasonable to suggest that the profile of regions that bid to host mega-event might shift once more, this time towards regions with existing sporting, infrastructure and tourist capacity to reasonably host a major event. Regions with lower opportunity costs for additional investments would likely also bid more frequently.

Even though in this section we are not focusing on supranational organizations (i.e.: FIFA and IOC), it is worth noting that the findings of this paper also have implications for those organizations. These implications mirror those outlined for policymakers in potential host regions. If informed policymakers significantly alter their behavior towards mega-events, then supranational organizations will likely have to review cost-sharing schemes, revenue-sharing schemes, minimum bid requirements, and the whole bidding process in order to have sufficient bids to competitively award the event. Furthermore, this change of behavior may lead supranational organizations to consider alternative hosting schemes. Such schemes include multiple host countries for the World Cup, similar to what is being planned for the 2020 Euro Cup, or other creative arrangements.

Conclusion

We performed an extensive literature review of mega-events to better understand their verifiable impacts in terms of economic activity, tourism performance and other qualitative and social measures. In doing so, we focus on ex-post evaluations rather than ex-ante

estimates.

We find that the vast majority of the literature on mega-events fails to substantiate a relationship between mega-events and increased economic activity, whether directly or indirectly in the short-term or long-run. Overall, the supposed economic benefits of hosting an event are vastly overstated in ex-ante studies. In practice, the real benefits are outweighed by the costs associated with event preparation.

With respect to tourism, it appears that mega-events can have a positive influence on visitor growth and on the image of the host as a tourist destination. However, this positive impact tends to be short-lived, conditional and well below ex-ante expectations. Most of the influence on visitor growth appears to be primarily concentrated in the four years before and after the event, with emerging evidence of pre-event rather than post-event impact. In fact, in the long run the positive influence of mega-events disappears. Similarly, after a brief boost of awareness and perception, hosts face rapid image decay after the event. Furthermore, it appears that the positive impact of tourism tends to depend on a number of other variables.

Finally, the positive influence on tourism, especially on visitor growth, tends to come in well below expectations. It appears that this is driven by the fact that ex-ante estimates systematically underestimate the impact of (i) time switching, (ii) crowding out and (iii) pricing out. This practice might lead to an overshooting in the estimate of net new tourists and their inherent “multiplicative effect.” This may overstate the potential impact of the mega-event and also turn into a self-defeating prophecy with substantial implications for the host region.

Furthermore, in light of these types of insights, it is necessary to question the pertinence of enhancing tourism through mega-event investment in lieu of other more direct promotion schemes. For instance, Teigland (1999) explored this question in his review of the Lillehammer experience, and found that the Winter Olympics cost on average more than 100 times the amount invested in a “focused decentralization” strategy in 20 selected destinations, having only twice the effect on guest nights. Findings like this point to the fact that perhaps the best way to promote tourism as an end goal is to pursue direct promotion schemes rather than attempting to leverage mega-events for that purpose.

Meanwhile, in reference to other qualitative and social impacts, there appears to be some evidence to support the case for improved trade relations as a result of hosting a mega-event. However, the finding is inconclusive, as it cannot be verified with an alternative specification that controls for structural differences across countries. Likewise, “feel-good” effects are grounded in survey evidence, tend to be ephemeral, and carry many exceptions. Lastly, regarding crime reduction, the reviewed ex-post evaluations tend to go against the expected causal relation and actually point out to an increase in criminal activity, particularly in property crime.

In general, it seems to be that the broader question in play for policymakers is whether mega-events are the appropriate channel through which the pursuit of these different policy objectives should be pursued.

Lastly, we believe that moving forward these findings should have important implications

for key stakeholders. Namely, potential hosts for mega-events should be more cautious and more zealous with respect to the terms they agree to when bidding for an event. They should carefully consider the explicit and implicit costs of hosting the event and compare them to the verifiable benefits.

This might mean balking at required investments in stadiums and infrastructure that do not fit the long-term outlook of the region. We believe that, if it is followed by many potential host regions, this type of more conservative approach towards event bidding would significantly impact the cost-benefit relation for mega-events. It could shape the current perspective on what is considered a competitive bid and shift the profile of the host regions that bid for mega-events. Additionally, we believe that it might behoove supranational organizations to incorporate this conservative approach into their own decision-making process, which in turn could lead to major changes in the bidding process and foster innovative hosting schemes.

References

- Allmers, Swantje and Maennig, Wolfgang .2009. "Economic Impacts of the FIFA Soccer World Cups in France 1998, Germany 2006, and Outlook for South Africa 2010." *Eastern Economic Journal* 35 (4): 500-519 DOI: 10.1057/ej.2009.30
- Andranovich, Greg, Matthew J. Burbank, and Charles H. Heying. 2001 "Olympic Cities: Lessons Learned from Mega-Event Politics." *Journal of Urban Affairs* 23, no. 2: 113-31. doi: 10.1111/0735-2166.00079
- Andreff, Wladimir, and Szymanski, Stefan. 2006. *Handbook on the Economics of Sport*. Elgar Original Reference. Cheltenham, UK ; Northampton, MA: Edward Elgar.
- Andreff, Wladimir. 2008. "Globalization of the sports economy." *Rivista di diritto ed economia dello sport* 4, no. 3: 13-32.
- Armstrong, Jeremy, 2014. "Brazil World Cup tourism triumph as 95% of fans say they will return to samba nation for a holiday" *Mirror*, August. 31. Accessed March 25, 2016. <http://www.mirror.co.uk/lifestyle/travel/usa-long-haul/brazil-world-cup-tourism-triumph-4126879>
- Baade, Robert A., and Matheson, Victor A. 2002. "Bidding for the Olympics: fool's gold?." In *Transatlantic Sport: The Comparative Economics of North American and European Sports*. Edited by Carlos Pestana Barros and Muradali Ibrah mo. (Cheltenham, UK: Edward Elgar Publishing), accessed Mar 28, 2016, <http://www.elgaronline.com/view/9781840649475.00017.xml>.
- Baade, Robert A., and Matheson, Victor A., 2004. "The Quest for the Cup: Assessing the Economic Impact of the World Cup," *Regional Studies*, 38, no. 4: 341-352. DOI: 10.1080/03434002000213888
- Baade, Robert A., Baumann, Robert W, and Matheson, Victor A. 2005. "Selling the Big Game: Estimating the Economic Impact of Mega-Events through Taxable Sales." *No 0510, Working Papers, College of the Holy Cross, Department of Economics*.
- Baade, Robert A., Baumann, Robert W, and Matheson, Victor A. 2010 "Slippery Slope? Assessing the

- Economic Impact of the 2002 Winter Olympic Games in Salt Lake City, Utah." *Région Et Développement*: 81-91.
- Barget, Eric, and Gouguet, Jean-Jacques. 2013. "The Importance of Foreign Spectators' Expenditure in the Tourism Impact of Mega-sporting Events." *Papeles De Europa*, no. 25: 27-50. E-ISSN: 1989-5917 ; DOI: http://dx.doi.org/10.5209/rev_PADE.2012.n25.41094
- Baumann, Robert, Bryan Engelhardt, and Victor A. Matheson. 2012 "Labor Market Effects of the World Cup: A Sectoral Analysis". In *International Handbook on the Economics of Mega Sporting Events*. Edited by Wolfgang Maennig and Andrew Zimbalist. Cheltenham, UK: Edward Elgar Publishing. DOI:10.4337/9780857930279
- Baumann, Robert, Taylor Ciavarra, Bryan Englehardt, and Victor A. Matheson. 2012 "Sports franchises, events, and city livability: an examination of spectator sports and crime rates." *The Economic and Labour Relations Review* 23, no. 2: 83-97.
- Billings, Stephen B., and J. Scott Holladay. 2012 "SHOULD CITIES GO FOR THE GOLD? THE LONG-TERM IMPACTS OF HOSTING THE OLYMPICS." *Economic Inquiry* 50, no. 3: 754-72. DOI: 10.1111/j.1465-7295.2011.00373.x
- Burbank, Matthew J., Greg Andranovich, and Charles H. Heying. 2002. "Mega-Events, Urban Development, And Public Policy." *Review of Policy Research* 19, no. 3: 179-202. DOI: 10.1111/j.1541-1338.2002.tb00301.x
- Campaniello, Nadia. 2013. "Mega events in sports and crime: Evidence from the 1990 Football World Cup." *Journal of Sports Economics* April 14: 148-170, first published on August 25, 2011 doi:10.1177/1527002511415536
- Chalip, Laurence. 2010 "Using the Olympics to optimise tourism benefits." *University lecture on the Olympics* [online article]. Barcelona : Centre d'Estudis Olímpics (UAB). International Chair in Olympism (IOC-UAB). Accessed March 25, 2016. http://olympicstudies.uab.es/2010/docs/chalip_eng.pdf
- Coates, Dennis, and Brad Humphreys. 2008 "Do Economists Reach a Conclusion on Subsidies for Sports Franchises, Stadiums, and Mega-Events?" *Econ Journal Watch* 5, no. 3: 294. E-ISSN: 1933527X
- Coates, Dennis, and Craig A Depken. 2011. "Mega-Events: Is Baylor Football to Waco What the Super Bowl Is to Houston?" *Journal of Sports Economics* 12, no. 6: 599-620. DOI: 10.1177/1527002510391368
- COJO 76. 1978. *Games of the XXI Olympiad Montréal 1976. Official Report. Vol. I, Organization*. Ottawa: COJO 76. Accessed March 25, 2016. <http://library.la84.org/6oic/OfficialReports/1976/1976v1p1.pdf>
- Du Plessis, Stan, and Maennig, Wolfgang. 2011. "The 2010 FIFA World Cup High-frequency Data Economics: Effects on International Tourism and Awareness for South Africa." *Development Southern Africa* 28, no. 3: 349-65. DOI: 10.1080/0376835X.2011.595994
- Du Plessis, Stan, and Maennig, Wolfgang. 2012 "The 2010 FIFA World Cup High-frequency Data Economics : Effects on International Tourism and Awareness for South Africa." in *International Handbook on the Economics of Mega-sporting Events*, 482-503.
- Du Plessis, Stan, and Venter, Cobus. 2010. "The Home Team Scores! A First Assessment of the Economic Impact of World Cup 2010." *Working Papers No 21/2010 Stellenbosch University, Department of*

- Economics*. Accessed March 25, 2016, <https://ideas.repec.org/p/sza/wpaper/wpapers120.html>.
- Edds, Samantha. 2012 "Economic Impacts of the Olympic Games through State Comparison." Accessed March 25, 2016. http://www.freakonomics.com/media/Economic_Impacts_of_the_Olympic_Games.pdf
- Erb, Kelly P., 2014. "World Cup Mania: Figuring Out FIFA, Soccer & Tax." *Forbes*, Jun 16. Accessed March 25, 2016. <http://www.forbes.com/sites/kellyphillipserb/2014/06/16/world-cup-mania-figuring-out-fifa-soccer-tax/>
- Ernst & Young. 2011. Sport events and regional development: the case of the Rio de Janeiro 2016 Olympic Games EY Brazil. Brazil: EYGM, accessed March 25, 2016, [http://www.ey.com/Publication/vwLUAssets/Brazil_World_Cup_impacts_2014_TZ_priloha/\\$FILE/Sustainable_Brazil_2014_World_Cup_impactsTZ_priloha_.pdf](http://www.ey.com/Publication/vwLUAssets/Brazil_World_Cup_impacts_2014_TZ_priloha/$FILE/Sustainable_Brazil_2014_World_Cup_impactsTZ_priloha_.pdf).
- European Tour Operators Association (EOTA), 2006. "Olympic Report." London: European Tour Operators Association. Accessed March 25, 2016. <http://www.etoa.org/docs/default-source/Reports/ETOA-reports/2006-etoa-olympic-report.pdf?sfvrsn=2>
- European Tour Operators Association(EOTA), 2010 "Olympic Hotel Demand, ETOA Report 2010." London: European Tour Operators Association. Accessed March 25, 2016. <http://www.etoa.org/docs/default-source/Reports/ETOA-reports/2010-etoa-olympic-report.pdf>
- Fedderson, Arne, and Maennig, Wolfgang. 2009. "Wage and Employment Effects of the Olympic Games in Atlanta 1996 Reconsidered." *Hamburg Contemporary Economic Discussions* No. 25. ISBN: 9783940369659
- Fedderson, Arne, and Maennig, Wolfgang. 2010a *Sectoral Labour Market Effects of the 2006 FIFA World Cup*. Hamburg Contemporary Economic Discussions 33.
- Fedderson, Arne, and Maennig, Wolfgang. 2010b. "Mega-Events and Sectoral Employment: The Case of the 1996 Olympic Games." *Hamburg Contemporary Economic Discussions* No. 35. ISBN: 9783940369857
- Fedderson, Arne, André Leão Grötzinger, and Wolfgang Maennig. 2009. "Investment in Stadia and Regional Economic Development-Evidence from FIFA World Cup 2006." *International Journal of Sport Finance* 4 (4): 221-239. Accessed March 25, 2016. <http://search.proquest.com/docview/229353592?accountid=11311>.
- FIFA. 2011. *FIFA Financial Report 2010*. Zurich: FIFA 2011, accessed March 25, 2016, [http://www.fifa.com/mm/document/affederation/administration/01/39/20/45/web_fifa_fr2010_eng\[1\].pdf](http://www.fifa.com/mm/document/affederation/administration/01/39/20/45/web_fifa_fr2010_eng[1].pdf)
- FIFA. 2015. *FIFA Financial Report 2014*. Zurich: FIFA 2015, accessed March 25, 2016. http://www.fifa.com/mm/document/affederation/administration/02/56/80/39/fr2014weben_neutral.pdf
- FIFA. 2015 "2014 FIFA World Cup™ reached 3.2 billion viewers, one billion watched final" *FIFA*, Dec. 15. Accessed March 25, 2016. <http://www.fifa.com/worldcup/news/y=2015/m=12/news=2014-fifa-world-cuptm-reached-3-2-billion-viewers-one-billion-watched--2745519.html>
- Flyvbjerg, Bent and Allison Stewart. 2012. "Olympic Proportions: Cost and Cost Overrun at the Olympics, 1960-2012." University of Oxford, Said Business Chool Working Papers. Accessed March 29, 2016. [http://eureka.sbs.ox.ac.uk/4943/1/SSRN-id2382612_\(2\).pdf](http://eureka.sbs.ox.ac.uk/4943/1/SSRN-id2382612_(2).pdf).

- Fourie, Johan, and Santana-Gallego, María. 2011. "The Impact of Mega-sport Events on Tourist Arrivals." *Tourism Management* 32, no. 6 (2011): 1364-370. doi:10.1016/j.tourman.2011.01.011
- Fourie, Johan, and Santana-Gallego, María. 2015 "How the 'Hand of Henry' Benefited the South African Economy." ERSA working paper 508. Accessed March 25, 2016.
http://www.econrsa.org/system/files/publications/working_papers/working_paper_508.pdf
- Garcia-Navarro, Lourdes. 2015. "Brazil's World Cup Legacy Includes \$550M Stadium-Turned-Parking Lot " *NPR*, May 11. Accessed March 25, 2016.
<http://www.npr.org/sections/parallels/2015/05/11/405955547/brazils-world-cup-legacy-includes-550m-stadium-turned-parking-lot>
- Goldblatt, David. 2010. "Footing South Africa's World Cup bill." *BBC News*, June 4. Accessed March 25, 2016. <http://news.bbc.co.uk/2/hi/africa/8718696.stm>
- Gouget J. and E.Barget. 2006. "Sports externalities" in *Handbook on the Economics of Sport*, edited by Wladimir Andreff and Stefan Szymanski. Cheltenham, U.K.: Edward Elgar Publishing.
- Gratton, Chris, and Preuss, Holger 2008. "Maximizing Olympic impacts by building up legacies." *The International Journal of the History of Sport* 25, no. 14: 1922-1938. DOI: 10.1080/09523360802439023
- Gruben, Kathleen, Moss, Steven, and Moss, Janet. 2012 "Do the Olympics Create Sustained Increases in International Tourism?" *Journal of International Business Research* 11, no. 1 Jan: 135-50.
- Haddad, Eduardo A., and Paulo R. Haddad. 2010 "Major sport events and regional development: the case of the Rio de Janeiro 2016 Olympic Games." *Regional Science Policy & Practice* 2, no. 1: 79-95.
- Hagn, Florian, and Maennig, Wolfgang. 2008. "Employment Effects of the Football World Cup 1974 in Germany." *Labour Economics* 15, no. 5: 1062-075. doi:10.1016/j.labeco.2007.09.004
- Hagn, Florian, and Maennig, Wolfgang. 2007. *Short-term to Long-term Employment Effects of the Football World Cup 1974 in Germany*. Hamburg Contemporary Economic Discussions 9. Hamburg: Univ., Fac. Economics and Social Sciences, Chair for Economic Policy.
- Hagn, Florian, and Wolfgang Maennig. 2009 "Large Sport Events and Unemployment: The Case of the 2006 Soccer World Cup in Germany." *Applied Economics* 41, no. 25: 3295-302. DOI: 10.1080/00036840701604545
- Heitner, Darren. 2014. "2014 FIFA World Cup Expected To Add \$3.03 Billion To Brazil's Economy" *Forbes*, May 14. Accessed March 25, 2016.
<http://www.forbes.com/sites/darrenheitner/2014/05/14/2014-fifa-world-cup-expected-to-add-3-03-billion-to-brazils-economy/#bff11e248521>
- Hotchkiss, Julie L., Robert E. Moore, and Stephanie M. Zobay. 2003. "Impact of the 1996 Summer Olympic Games on Employment and Wages in Georgia." *Southern Economic Journal* 69 (3): 691-704. ISSN: 00384038
- Humphreys, Brad R. and Szymon Prokopowicz. 2007 "Assessing the Impact of Sports Mega-events in Transition Economies: EURO 2012 in Poland and Ukraine." *Int. J. of Sport Management and Marketing* 2, no. 5/6: 496. DOI: 10.1504/IJSMM.2007.013963
- Hunt, Tim. 2012. "How Tax Avoidance Schemes Now Lie at the Heart of the Modern Olympic Games," *Ethical Consumer*, July 27.

- International Olympic Committee, 2012 "London 2012 Olympic Games: Global Broadcasting Report." Accessed March 25, 2016. http://www.olympic.org/Documents/IOC_Marketing/Broadcasting/London_2012_Global_%20Broadcast_Report.pdf
- International Olympic Committee, 2014 *International Olympic Committee: 2014 Marketing Fact File*. Accessed March 25, 2016. http://www.olympic.org/Documents/IOC_Marketing/OLYMPIC_MARKETING_FACT_%20FILE_2014.pdf
- International Olympic Committee. 2013. *Olympic legacies* (Lausanne: International Olympic Committee, March), accessed March 25, 2016, http://www.olympic.org/documents/olympism_in_action/legacy/2013_booklet_legacy.pdf.
- Kanter Media. 2015 "2014 FIFA World Cup Brazil. Television Audience Report." (London: FIFA Dec 14). Accessed March 25, 2016. [http://resources.fifa.com/mm/document/affederation/tv/02/74/55/57/2014fwcbrazilvaudiencereport\(draft5\)\(issuedate14.12.15\)_neutral.pdf](http://resources.fifa.com/mm/document/affederation/tv/02/74/55/57/2014fwcbrazilvaudiencereport(draft5)(issuedate14.12.15)_neutral.pdf)
- Karly, Spronk, Siebrits Krige, and Fourie Johan. 2011 "Tourist Displacement in Two South African Sport Mega-Events." *Development Southern Africa* 28, no. 3: 319-32. DOI:10.1080/0376835X.2011.595991
- Kasimati, Evangelia. 2003. "Economic aspects and the Summer Olympics: a review of related research." *International journal of tourism research* 5, no. 6: 433-444. DOI: 10.1002/jtr.449
- Kesenne, Stefan. 1999 "Miscalculations and Misinterpretations in Economic Impact Analysis." in *The Economic Impact of Sports Events*. Edited by Claude Jeanrenaud, 29-39. Neuchatel, Switzerland: Centre International d'Etude du Sport.
- Lapowsky, Iffie. 2014 "How Brazil plans to teach a million people english before the Rio Olympics." *Wired*, Dec. 8. Accessed March 25, 2016. <http://www.wired.com/2014/12/education-first-brazil/>
- Leeds, Michael A., 2008 "Do Good Olympics Make Good Neighbors?." *Contemporary Economic Policy*, Vol. 26, Issue 3: 460-467, July. Available at SSRN: <http://ssrn.com/abstract=1157571> or <http://dx.doi.org/10.1111/j.1465-7287.2007.00067.x>
- Levesque, K. 2001. "Il y a 25 ans les Jeux: une monstrueuse aventure financière", *Le Devoir*, Jul 7.
- Long, Judith Grand. 2005. "Full Count : The Real Cost of Public Funding for Major League Sports Facilities." *Journal of Sports Economics* 6, no. 2: 119-43. doi: 10.1177/1527002504264614
- Los Angeles Olympic Organizing Committee and Richard B. Perelman (ed). 1985. *Official Report of the Games of the XXIIIrd Olympiad, Los Angeles, 1984*. Vol. 1. Los Angeles Olympic Organizing Committee. Accessed March 25, 2016 <http://library.la84.org/6oic/OfficialReports/1984/1984v1pt2.pdf>
- Maennig, W. 2007. "One Year Later: A Re-Appraisal of the Economics of the 2006 Soccer World Cup." Hamburg Working Paper Series in Economic Policy No. 10/2007.
- Maennig, Wolfgang and Andrew, Zimbalist. 2012. "What is a mega sporting event?" in *International handbook on the economics of mega sporting events* edited by Maennig, Wolfgang, and Zimbalist, Andrew S. Cheltenham, UK: Edward Elgar Publishing Ltd.

DOI:10.4337/9780857930279

- Maennig, Wolfgang, and Du Plessis, Stan. 2007 "World Cup 2010 : South African Economic Perspectives and Policy Challenges Informed by the Experience of Germany 2006." *Contemporary Economic Policy: A Journal of Western Economic Association International* 25, no. 4: 578-90. DOI: 10.1111/j.1465-7287.2007.00074.x
- Maennig, Wolfgang, and Felix Richter. 2012. "Exports and Olympic Games Is There a Signal Effect?." *Journal of Sports Economics* 13, no. 6: 635-641. doi:10.1177/1527002512454663
- Magnay, Jacquelin. 2011. "London 2012 Olympics: Athletes' village sold to investment arm of Qatari ruling family." *The Telegraph*, August 21. Accessed March 25, 2016. <http://www.telegraph.co.uk/sport/olympics/8697749/London-2012-Olympics-Athletes-village-sold-to-investment-arm-of-Qatari-ruling-family.html>
- Marcopoto, Talia, 2014. "Brazil claims 'victory' in World Cup." *CNN*, July 16. Accessed March 25, 2016. <http://www.cnn.com/2014/07/16/travel/brazil-world-cup-tourism/>
- Matheson, Victor A. 2009. "Economic Multipliers and Mega-event Analysis. (Report)." *International Journal of Sport Finance* 4, no. 1: 63. ISSN: 1558-6235
- Matheson, Victor A., and Baade, Robert A. 2004 "Mega-sporting Events in Developing Nations Playing the Way to Prosperity?" *The South African Journal of Economics* 72, no. 5: 1084-095. doi: 10.1111/j.1813-6982.2004.tb00147.x
- Matheson, Victor, Thomas Peeters, and Stefan Szymanski. 2012 "If You Host It, Where Will They Come From? Mega-Events and Tourism in South Africa." *IDEAS Working Paper Series from RePEc*, IDEAS Working Paper Series from RePEc, 2012.
- Matheson, Victor. 2006. "Mega-Events: The effect of the world's biggest sporting events on local, regional, and national economies." *Economics Department Working Papers*. Paper 68. http://crossworks.holycross.edu/econ_working_papers/68
- Mitchell, Heather, and Mark Fergusson Stewart. 2015 "What Should You Pay to Host a Party? An Economic Analysis of Hosting Sports Mega-events." *Applied Economics* 47, no. 15 (2015): 1550-561. DOI: 10.1080/00036846.2014.1000522
- Nooij, De, M.N., Berg, Van Den, M.R., and Koopmans, C.C. 2010 "Bread or Games? Social Cost-benefit Analysis of the World Cup in the Netherlands." Accessed March 25, 2016. http://www.seo.nl/uploads/media/dp60_bread_or_games.pdf
- Oldenboom, E.R. 2006. Costs and benefits of major sports events. A case study of Euro 2000. Amsterdam: MeerWaarde Onderzoeksadvies
- Oldenboom, Egbert R. 2008 "The impact of the broadcasting of sports events on the image and awareness of host cities abroad." *Belgeo. Revue belge de géographie* 2: 167-180. Accessed March 25, 2015.
- Porter, Philip K., 1999. "Mega-Sports Events as Municipal Investments: A Critique of Impact Analysis," in *Sports Economics: Current Research*, eds John Fizel, Elizabeth Gustafson, and Larry Hadley. Westport, CT: Praeger Press.
- Porter, Philip K., and Deborah Fletcher. 2008. "The Economic Impact of the Olympic Games: Ex Ante Predictions and Ex Poste Reality." *Journal Of Sport Management* 22, no. 4: 470-86. ISSN: 0888-4773

- Powell, Micheall. 2015. "Bucks' Owners Win, at Wisconsin's Expense" *The New York Times*, August 15. Accessed March 25, 2016. http://www.nytimes.com/2015/08/15/sports/bucks-new-owners-get-house-warming-gift-of-public-money.html?_r=0
- Preuss, Holger. 2006 "Lasting effects of major sporting events." *Institute of Sport Science* (2006). ISSN 652-7224 <http://idrottsforum.org/articles/preuss/preuss061213.pdf>
- Rapoza, Kenneth. 2014. "Bringing FIFA to Brazil Equals to Roughly 61% of Education Budget" *Forbes*, Jun 11. Accessed March 25, 2016, <http://www.forbes.com/sites/kenrapoza/2014/06/11/bringing-fifa-to-brazil-equal-to-roughly-61-of-education-budget/#6180a81e334f>
- Reuters, 2010. "World Cup will create more jobs in SA – Zuma". *Reuters*, 22 June.
- Ritchie, JR Brent, and Brian H. Smith. 1991. "The impact of a mega-event on host region awareness: A longitudinal study." *Journal of Travel Research* 30, no. 1s: 3-10. doi: 10.1177/004728759103000102
- Rivenburgh, Nancy 2010 "The Olympic Games, media and the challenges of global image making" *University lecture on the Olympics* [online article]. Barcelona : Centre d'Estudis Olímpics (UAB). Accessed March 25, 2016. http://ceo.uab.cat/2010/docs/rivenburgh_eng.pdf
- Rogers, Simon. 2012. "London Olympics 2012: where does the money come from-and where's it being spent." *The Guardian Online*, July 26. Accessed March 25, 2016. <http://www.theguardian.com/sport/datablog/2012/jul/26/london-2012-olympics-money>
- Rose, Andrew K., and Spiegel, Mark M. "The Olympic Effect." *The Economic Journal : The Journal of the Royal Economic Society* 121, no. 553 (2011): 652-77. DOI: 10.1111/j.1468-0297.2010.02407.x
- Seelye, Katherine, 2015. "Boston's Bid for Summer Olympics Is Terminated" *The New York Times*, July 27. Accessed March 25, 2016. http://www.nytimes.com/2015/07/28/sports/olympics/boston-2024-summer-olympics-bid-terminated.html?_r=0
- Siegfried, John, and Zimbalist, Andrew. 2002 "A Note on the Local Economic Impact of Sports Expenditures." *Journal of Sports Economics* 3, no. 4: 361-66. doi: 10.1177/152700202237501
- Solberg, Harry, and Holger Preuss. 2007 "Major Sport Events and Long-Term Tourism Impacts." *Journal of Sport Management* 21, no. 2: 4. Accessed March 25, 2016.
- Song, Wonho. 2010. "Impacts of Olympics on exports and tourism." *Journal of economic development* 35, no. 4: 93.
- Sport & Recreation Department of South Africa. 2013. *2010 FIFA World Cup Country Report*. (Sports & Recreation Department of South Africa 2013), accessed March 25, 2016 <http://www.srsa.gov.za/MediaLib/Home/DocumentLibrary/SRSACountryReport2013-withcover.pdf>
- Szymanski, Stefan. 2002. "The economic impact of the World Cup." *World Economics* 3, no. 1: 169-177. Accessed March 25, 2015. <https://ideas.repec.org/a/wej/wldecn/96.html>
- Teigland, Jon. 1999. "Mega-events and impacts on tourism; the predictions and realities of the Lillehammer Olympics." *Impact assessment and project appraisal* 17, no. 4: 305-317, DOI: 10.3152/147154699781767738
- Venter, Cobus. 2010 "The Home Team Scores! A First Assessment of the Economic Impact of World Cup 2010." 21/2010. Accessed March 25, 2016.

<https://ideas.repec.org/p/sza/wpaper/wpapers120.html>

von Rekowsky, Robert. 2013. "Are the Olympics a Golden Opportunity for Investors?" *Leadership series, Investment Insights*. Fidelity Investments, August. Accessed March 25, 2016.

https://www.fidelity.com/bin-public/060_www_fidelity_com/documents/Are%20the%20Olympics%20a%20Golden%20Opportunity%20for%20Investors_Fidelity.pdf

Wade, Stephen. 2015. "FIFA returns \$100M to Brasil; World Cup cost \$15 billion.: USA Today, January 20. Accessed March 25, 2016. <http://www.usatoday.com/story/sports/soccer/2015/01/20/fifa-returns-100m-to-brazil-world-cup-cost-15-billion/22050583/>

Whaples, Robert. 2006 "Do Economists Agree on Anything? Yes!" *The Economists' Voice* 3, no. 9: November. DOI: 10.2202/1553-3832.1156.

Zimbalist, Andrew. 2015 *Circus Maximus : The Economic Gamble Behind Hosting the Olympics and the World Cup*. Washington: Brookings Institution Press.