

Infrastructure Investments and Mega-Sports Events: Comparing the Experience of Developing and Industrialized Countries

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Abstract

Countries vigorously compete for sports mega-events in hopes of generating an economic impact during the event but also long-term growth induced by the hallmark event. It is well understood that the economic legacy depends on the infrastructure that not only facilitates the games but also has far broader implications for sustainable economic activity in the host city's economy. The purpose of this paper is to analyze the extent to which developing and developed countries adopt different strategies as it related to the composition of infrastructure enhancements that have implications for the generation of an economy legacy from the mega-sports event.

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Introduction and Background

Sporting mega-events such as the Summer and Winter Olympic Games or soccer's World Cup focus the world's attention on the region hosting the event and are highly sought-after by cities and countries around the globe. It would not be an exaggeration to suggest that the competition among cities and countries to host these events can often be as fierce as the competition among the athletes on the playing field. Over the past decade or two, developing countries have increasingly thrown their hats into the ring for a chance to host these mega-events. However, the cost of operating, organizing, and building infrastructure for an Olympic Games or World Cup can be daunting, especially for developing nations without the same level of sports and tourism infrastructure that exists in many industrialized countries. On the other hand, mega-events present an opportunity to generate the political will necessary to make investments in general infrastructure that can lead to long-run economic growth. From an economic standpoint, the question is whether mega-events represent a good investment for developing countries and whether developing nations have used mega-events differently than industrialized nations to promote general infrastructure development. These are the questions that will be addressed in this chapter.

The modern Summer Olympic Games began in 1896 and take place every four years at new locations selected through an elaborate bidding process many years in advance of the event. The Winter Olympics, held since 1924, follow an identical procedure. In recent times, the host city for both the Summer and Winter Games has been selected six or seven years before the event is to take place. Historically, hosting the Olympic Games has been almost exclusively the domain of rich, industrialized nations. Between 1896 and 1952, every Summer and Winter Games was held in either Western Europe or the U.S. with cities in Japan, Canada, and Australia

joining the mix over the next two decades. Mexico City in 1968 was the first location outside the industrialized world in which the Games were held. Eastern European countries were awarded the Summer Games in 1980 (Moscow) and Winter Games in 1984 (Sarajevo, Yugoslavia). Seoul, Korea was awarded the 1988 Summer Games, a time during which South Korea might be classified as “rapidly industrializing” rather than industrialized, but it is probably fair to note that shortly after the Olympics, the country was admitted to the Organization for Economic Cooperation and Development (OECD), a de facto dividing line between industrialized and developing nations.

More recently, however, the International Olympic Committee (IOC) has encouraged bids from poorer countries and has awarded the Games on several occasions to countries outside of the OECD. The 2008 Summer Games were hosted by China, and the 2016 Summer Olympics will be played in Rio de Janeiro, the first time the event has taken place in the South America. In both cases, the winning nations prevailed over numerous bidders from various industrialized countries. The next two Winter Olympics will be played outside of Western Europe, North America, and Japan, for only the second and third times with the 2014 Winter Olympics in Sochi, Russia, and the 2018 Winter Games in Pyeongchang, South Korea. The list of countries submitting formal bids has also dramatically changed in recent decades. Twenty percent of the bids submitted for the Summer Games prior to 2000 came from outside of Western Europe, Japan, Australia, Canada, and the U.S. Since 2000, however, over half of all bids have come from this group including applications by Istanbul, Bangkok, Havana, Buenos Aires, and Cape Town, among others, plus, of course, the successful bids by Beijing and Rio. On the Winter Olympics side, the past decade has witnessed bids from Kazakhstan, Georgia, China, Slovakia, and Poland for the first time. (See Table 1.)

The world's other major international mega-sporting event is the Fédération Internationale de Football Association (FIFA) World Cup. Like the Olympics, this event takes place every four years and features soccer teams composed of players grouped by nationality (i.e. "national teams"). The World Cup³ began in 1930 in response to soccer's growing prominence in the Olympics. Due to the number of large stadiums required to accommodate the tournament, FIFA selects a host country for the event as opposed to the IOC's tradition of choosing a single host city. For the first 60 years of the competition, the World Cup essentially alternated between the two centers of soccer interest, Europe and Latin America, so unlike the Olympics, numerous countries in Central and South America have hosted the World Cup including Uruguay, Brazil, Chile, Argentina, and Mexico.

This rotation scheme lasted until 1994 when FIFA, in an attempt to expand world interest in the game, awarded the World Cup to the U.S., a huge untapped market for the sport. Japan and South Korea followed in 2002, the first tournament co-hosted by two countries and the first World Cup played in Asia. More "firsts" followed: South Africa became the first African host in 2010, Russia becomes the first Eastern European host in 2018, and Qatar, a nation with no domestic soccer league and little soccer history or tradition, is slated to become the first Middle Eastern host in 2022. In 2014, the World Cup returns to a Latin American country for the first time in nearly 30 years in Brazil.

It is interesting to note that as the world's attention in the economic realm has increasingly shifted from the so-called G-7 nations, which include the world's largest industrialized economies such as the U.S., Japan, U.K., and Germany, to the BRICS nations, an

³ Other international sporting organizations, notably in Cricket and Rugby, also host similar international tournaments that are dubbed "the World Cup." These events are typically smaller than the FIFA World Cup, and for the purposes of this paper, the term "World Cup" is meant to describe the soccer tournament unless specifically noted otherwise.

acronym for the five rapidly developing nations of Brazil, Russia, India, China, and South Africa, so too has attention shifted in the sports world. Including the 2010 Commonwealth Games hosted by India, every BRICS nation will have held at least one of the world's top sporting events between 2008 and 2018.

While it is clear that developing nations have stepped up their efforts to host these events, their motivations are less clear. Certainly, there are political considerations that may induce a country's leadership to bid for an event without any concern for the economic implications. For example, the 1995 Rugby World Cup held in South Africa gave the country an opportunity to "announce its re-emergence as a full member of not only the world's sporting community but its political community. The picture of South African President Nelson Mandela wearing the jersey of the white South African captain Francois Pienaar while presenting him with the championship trophy, was a powerful image to the world indicating that South Africa had emerged from its years of racial oppression and served to unify the country." (Matheson and Baade, 2004, pg. 1094) From an economic perspective, however, the benefits are much less clear.

Short-run costs and benefits

It is undeniable that mega-events result in significant tourism expenditures by sports fans, but in many cases the observed increases in economic activity during the event fall well short of the economic impact predicted by event organizers. Focusing just on the Olympics and World Cup, Table 2 shows commissioned *ex ante* economic impact studies for various Olympics and World Cups. Table 3 shows *ex post* estimates of short run economic impact performed by economists not associated with the events for various Olympics and World Cups examining

actual economic data before, during, and after the events. In the majority of cases, independent economists find little or no direct economic impact of mega-events on host economies.

The disconnect between *ex ante* predictions and *ex post* reality comes as a result of numerous factors. Obviously, any economic impact studies may be biased if inflated, unrealistic, or best-case projections are used. But even under realistic assumptions, economic impact estimates often suffer from at least three deficiencies that serve to exaggerate the numbers. First, to the extent a sporting event attracts spectators from the local community, any money spent by these fans is money not being spent by these residents elsewhere in the local economy. Spending by local citizens does not represent new money in the economy but is rather simply money that is reallocated within the city or country. For example, at least 400,000 of the 3 million tickets for the 2014 World Cup in Brazil are available for sale exclusively to Brazilians, often at a discounted price (BBC, 2013). While this strategy is likely to engender goodwill among local residents and provide a festive atmosphere inside the stadiums, it does little to promote economic growth or pay for costs of hosting the event.

Second, sports fans can crowd out regular visitors displacing economic activity that would have occurred in the absence of the sporting event. While a city's hotels and restaurants may be full of sports fans during a tournament, if those same hotel rooms and restaurants would have been full of business travelers or other vacationers in the absence of the mega-event, then the tournament may not result in a net increase in economic activity. For example, although the 2012 Summer Olympics attracted 800,000 international visitors to the U.K., the government reported,

“Despite this influx of Games visitors, overall international visitor numbers to the U.K. were actually down in Q3 2012 when compared to the previous year. This suggests that

there was substantial displacement of regular visitors who were deterred by the potential for overcrowding, disruption and price rises because of the Games.” (UK, 2013, pg. 18) Similarly, while initial projections for the 2010 World Cup in South Africa predicted 483,000 international visitors for the event, econometric analysis of tourist arrivals to the country suggests an increase of only 123 to 202 thousand above what would have normally been expected without the World Cup (Matheson, Peeters, and Syzmanski, 2012).

Third, money spent in a local economy during a mega-event may not stick in the local economy. Mega-events are frequently characterized by capacity constraints and high prices for items such as accommodations. Indeed, the U.K. government claimed that despite a fall in raw tourism numbers during the 2012 Olympics, “the average spend of Games visitors was around double that of a normal visitor and as a result there was a substantial net increase in overseas visitor spend of £235million.” (UK, 2013, pg. 18) While the combined effect of lower visitor numbers combined with higher prices may have led to higher direct spending, it is quite possible that indirect spending and the multiplier effect actually fell. As case in point, hotel rooms can frequently sell at three or four time their normal rates during mega-events, but the desk clerks and room cleaners who service these establishments will not generally see their wages triple or quadruple. Thus, the tourist industry should see an increase in returns to capital with little effect on returns to labor. In addition, some of the higher spending at the event leaks out of local economy as many hotels or other service industries are owned by outside individuals.

Short-run costs

Hosting mega-events can be an enormously expensive affair and governing bodies such as the IOC and FIFA typically require that the majority of the costs be borne by the host country.

The Olympics require a large amount of very specific sports infrastructure in order to accommodate the range of events, and FIFA requires World Cup hosts to have at least 12 modern stadiums capable of seating at least 40,000 spectators with one of the stadiums being able to seat at least 80,000 for the opener and the final. While both the IOC and FIFA claim to be cost conscious, the evidence suggests otherwise. Faced with bids from multiple competing cities and countries, the organizing bodies have rarely selected hosts that have promised to minimize spending on sports infrastructure. Indeed, the only recent Olympic Games that involved essentially no new sports venues was the 1984 Summer Olympics in Los Angeles. However, Los Angeles was the only city that submitted a bid that year, allowing it to dictate the terms to the IOC rather than the other way around. More commonly, host cities and countries face numerous competitors, and bids without lavish spending on both facilities and operations are doomed to lose. In its bid for the 2022 World Cup, the U.S. proposed using 18 currently existing stadiums with another 38 completed stadiums being considered earlier in the bid process (US Soccer, 2009). In effect, the U.S. demonstrated that it could meet FIFA's stadium requirements five times over without any new spending on sports facilities. Instead, FIFA chose Qatar as the host, a selection that will require the country to build 10 new 45,000-person, fully air conditioned stadiums from scratch many of which will then be disassembled after the games and rebuilt in a variety of developing countries. While the U.S. bid would have maximized the joint profits of FIFA and the host country by minimizing infrastructure costs, the Qatar bid is apparently how one maximizes the chance of winning the hosting rights if profit to the host nation is not a consideration. In total, Qatar is reportedly prepared to spend \$200 billion in its preparations for the 2022 tournament (AP, 2013).

Operating costs can often entail heavy expenditures in large part due to the extensive security requirements that mega-events require. The security budget alone for the Athens Olympics of 2004 ran to over \$1.5 billion, nearly 6 times the budget for the Sydney Games just 4 years earlier. The 2010 FIFA World Cup entailed \$3.9 billion in expenses borne by South Africa, including at least \$1.3 billion in stadium construction costs (Voigt, 2010; Baade and Matheson, 2012) although some estimates place the total as high as \$12 billion. Brazil's budgets for 2014 World Cup and 2016 Olympics are \$13.3 billion and \$18 billion respectively, and as is common in sporting events, costs have escalated drastically in just a few short years (Zimbalist, 2011).

“Back in 2009, the Brazilian Football Confederation estimated the 12 stadiums being refitted or built for the World Cup would cost about 2.2 billion reais – a figure that two years later seems quaint. The government now sees them costing more than triple that, at 6.9 billion reais.” (Grudgings, 2011)

Table 3 shows the sports infrastructure, non-sports infrastructure, and operational spending for various recent mega-events. Full information is not available for all events. Sports infrastructure includes spending on stadiums and sports venues while non-sport infrastructure includes construction costs for transportation, tourist and athlete accommodations, and public spaces. It is important to note that the dividing line between sports infrastructure and non-sports infrastructure is not entirely clear. For example, 20% of the total budgeted cost for London's new Wembley Stadium was \$150 million in general infrastructure improvements including a new roads and a renovated Underground station designed to better accommodate stadium traffic. While the roads and subway station are clearly not a part of the stadium, without the stadium, the roads and station would not be required (Matheson, 2008). It is also worth noting that the entire Wembley project, which played a significant role in the 2012 London Summer Games, ended up

costing 798 million pounds, over twice its original budget, yet another example of optimistic accounting in sporting events.

Given the huge costs associated with mega-events and the relatively small number of visitors, it is virtually impossible for the direct revenues associated with these events to cover their expenses. This is less true if little in the way of new infrastructure needs to be built. For example, total infrastructure costs for the 1994 World Cup held in the U.S. were only \$30 million as the existing stadiums in the country were more than adequate for the event. Similarly, the 1984 Summer Games in Los Angeles made a large profit for the organizers, again because existing facilities were used for most events. Given the huge increases in security that have arisen in the post 9/11 world, however, it is uncertain whether even with no capital outlays that a mega-event would have short-run net benefits that exceed the operating costs for the host. Thus, economic rationality rests on the legacy effects of the events in terms of branding or economic growth based on infrastructure legacies.

Long-run benefits

If a temporary surge in visitors or the creation of new or improved sports infrastructure cannot be seen as saviors for mega-events, then one is left to appeal to the creation a long-term legacy, perhaps through the construction of non-sports infrastructure, as an economic justification for hosting mega-events. As can be seen in Table 4, non-sports related infrastructure expenditures often exceed the spending on sports venues by a wide margin, and unlike sports venues, expenditures on transportation networks and other types of general infrastructure have the potential to encourage future growth. Mega-events can serve as an impetus to engage in needed infrastructure investments that don't get done due to a lack of political will. Furthermore,

given the high need for infrastructure improvements in the developing world, it is likely that the bids organized by poorer countries may distinctly differ from those in industrialized nations by emphasizing general infrastructure development.

Brazil, for example, is engaging in massive investment spending in its run up to the 2014 World Cup and 2016 Summer Olympics. The words of Brazilian Football Confederation President Ricardo Teixeira echo those of many proponents of mega-events.

"We are a civilized nation, a nation that is going through an excellent phase, and we have got everything prepared to receive adequately the honor to organize an excellent World Cup. Over the next few years we will have a consistent influx of investments. The 2014 World Cup will enable Brazil to have a modern infrastructure. In social terms it will be very beneficial.... Our objective is to make Brazil become more visible in global arenas. The World Cup goes far beyond a mere sporting event. It's going to be an interesting tool to promote social transformation." (CNN, 2007)

The 2014 Winter Olympics in Sochi, Russia and the Russia's 2018 World Cup elicit similar remarks. In response to the reported \$51 billion price tag for the Sochi Games, IOC President Jacques Rogge noted,

"You have to put it into proportion. The organization of the games is not going to cost a lot of money. But the government ... wished to develop the whole area. You cannot just take the cost of the train and the tunnels and the road into the cost of the games because this tunnel and the train and the road are not meant for two weeks of competition, they are meant for generations to last."
(Buravchenko, 2013)

According to Jean-Claude Killy, chair of the IOC's coordination commission for the Sochi Games, the high cost is partly due to the fact that 85 percent of the infrastructure had to be built from scratch (RT.com). The costs for 2018 World Cup follow a similar pattern. The budget has ballooned from roughly \$10 billion at the time the competition was awarded to Russia in 2010 to \$20.5 billion in the fall of 2012 to \$29 billion by spring of 2013. The Ministry of Sport, however has warned the government that they will need \$44 billion to organize the championships at an appropriate level (Kuvshinova, 2013). This figure includes, perhaps, \$7.5 billion to build or renovate the 12 stadiums required for event, but the overwhelming majority of the spending is going towards general infrastructure such as roads, subways, and airports (Mackay, 2012).

The potential for the surge in general infrastructure investment as a result of preparations for a mega-event leading to overall economic growth following the event is a real possibility; however, several caveats are in order. First, spending millions or billions of dollars in unproductive sports infrastructure simply in order to have the excuse or the political will to make needed non-sports infrastructure investments is a distinctly second-best economic strategy. Public capital would be more efficiently allocated if governments would simply make reasonable public investment choices without a mega-event hanging over their heads.

In addition, mega-events can place surprising tight deadlines on major public works projects. These deadlines can serve to raise costs due to rushed schedules, relaxed bidding rules, and potential corruption. Indeed, as the event nears it may become all too common for a host nation trying to stay within a fixed budget to reallocate resources towards sports infrastructure, which absolutely must be completed ahead of the event, and away from the general infrastructure

improvements that were both promised and also comprised the best hope for long-run economic growth.

Finally, it should be noted that preparations for a mega-event can result in too high a level of investment in non-athletic infrastructure. An airport, transportation network, or number of hotel rooms that is the right size for three weeks of tourist insanity may be extensively overbuilt for the post-event period. For example, two major luxury hotels built for the 1994 Winter Olympics in Lillehammer, Norway, filed for bankruptcy shortly after the close of the Games.

At this point we turn to an examination of long-run economic performance of host nations to examine whether the potential for long-run growth as a result of a mega-event can be observed empirically. We use data from the International Monetary Fund (IMF) to compare macroeconomic indicators between hosts and non-hosts. Our sample frame is 1980 to 2013. The IMF provides data for 186 countries, though we omit countries with less than \$20 billion in average gross domestic product during our sample frame since these countries are both highly unlikely to host an Olympics or World Cup, and may have volatile economies based on only one or two major industries.

Most of our comparisons are between members and non-members of the Organisation for Economic Cooperation and Development (OECD). According to its website, “the mission of the OECD is to promote policies that will improve the economic and social well-being of people around the world”.⁴ Its 34 members are well-developed democracies and serve as our proxy for an industrialized nation in this context. Roughly half of these countries became members during the formation of the OECD in 1961 and the other half have since been added. One notable addition is South Korea, which became an OECD member between the 1988 Summer Olympics

⁴ <http://www.oecd.org/about/>, accessed 7-15-2013.

in Seoul and the 2002 World Cup. Our definition of OECD-membership is year-specific for this reason. Although the year varies, typically the last years of this sample frame are IMF projections. We minimize the use of projections where possible, but some remain since non-OECD countries hosting an Olympics or World Cup is a relatively recent phenomenon.

Table 5 lists the year and host of a Summer Olympics, Winter Olympics, and World Cups. During this sample frame, there were 26 of these events, 20 of which were held in 12 different OECD countries. Despite this trend, the next time each event is held will be in a non-OECD country.

We restrict our data analysis to three variables: the growth rate of real gross domestic product (GDP), the unemployment rate, and the growth rate of real exports. The first two indicators measure the economic well-being of a nation, while the latter could plausibly be influenced by the heightened publicity for an area that serves as a host. Each of these indicators is represented as a rate to provide a level playing field for this diverse list of countries. The GDP and exports growth rates use constant dollars, though the base year varies.

Table 6 presents comparisons of our three macroneconomic indicators across host/non-host and OECD/non-OECD countries. For now, our definition of hosting is any of the Summer Olympics, Winter Olympics, and World Cups between 1980 and 2013. In addition, the means for each indicator are taken over the entire sample frame. We omit South Korea for this analysis since its OECD membership was different for the two events it hosted. We also include Bosnia and Herzegovina, which does not have data until 1999, to augment the relatively small pool of non-OECD hosts. It might be wiser to omit this country since it was a host in the larger country of Yugoslavia, but omitting its observations does not substantially change our results.

While these comparisons are admittedly broad, some trends are apparent. Host countries have slightly higher average unemployment rates and lower growth rates of real GDP and real exports compared to non-host countries. While these summary statistics paint a negative picture for developed host countries, it is probably reflective of the majority of hosts are developed nations. These economies tend to be stable and are less likely to experience substantial peaks or valleys in macroeconomic data.

In order to understand the gap in macroeconomic indicators between hosts and non-hosts, the next set of comparisons in Table 6 restricts the sample in two ways. The first comparison between hosts and non-hosts is only among OECD countries, and the second comparison between hosts and non-hosts is only among non-OECD countries. These comparisons are broadly similar to host/non-host comparison using the entire sample: hosts have lower mean growth rates of GDP and exports and higher unemployment. However, among non-OECD countries the gap between mean growth rates closes. This suggests that, among non-OECD countries, hosts are not a select group.

Table 7 begins with a comparison of OECD and non-OECD countries. Not surprisingly, OECD countries have higher GDP and exports growth rates and lower unemployment. In addition, the standard deviation of these indicators are higher in for non-OECD countries, suggesting that non-OECD countries are a less homogenous group than OECD countries. This trend is more pronounced among hosts. Roughly the same gap in GDP growth, exports growth, and unemployment rates between OECD and non-OECD countries when the sample is restricted to only host countries. However, the gap in standard deviations for GDP growth and unemployment is considerably larger. Some of this disparity is caused by small-sample bias. There are only six non-OECD countries that have hosted an Olympics or the World Cup. One of

these countries, Russia, enjoyed considerable growth in GDP in the aftermath of the fall of the Soviet Union. Taken together, these controls offer little guidance in determining the typical host country.

Perhaps a better method is to examine the path of these indicators prior, during and after hosting an event. Many boosters of these events tout large economic gains from hosting, a phenomenon that has little to no support in the academic literature. The gains from hosting are not necessarily restricted to the time of the event. Before the event is staged, a significant investment in infrastructure is typically required. This usually means new stadium/venue construction, and for some countries significant infrastructure improvements to ensure lodging and transportation for all of the participants and spectators. During the event there is an influx of tourism and attention to the host site. After the event the host country could see gains from receiving the world spotlight.

Figure 1 presents the path of GDP growth rates for all host countries. It also includes the same paths for OECD and non-OECD hosts. Each path of GDP growth rates appears to fluctuate around a horizontal trend, with the exception of non-OECD hosts two or three years after the event. During these years, real GDP grows by an average of five percent.

For developing prospective host countries, it is easy to be motivated by these numbers. On their surface, they paint a picture of countries with rising profiles that are, in part, thanks to hosting an Olympics or World Cup. Alternatively, these host countries may have benefitted from returns to their investment in infrastructure. This is especially true for developing countries who become hosts and require significant infrastructure upgrades in order to accommodate a weeks-long influx of tourism.

Unfortunately, the academic literature has not been able to link hosting an Olympics or World Cup with economic growth. There are several reasons this may occur. One common explanation is that even these large, long-lasting events are small relative to the host country's annual economy. This is even true for under-developed nations that have hosted events. In addition, this analysis provides no causal relationship between hosting and GDP. However, we cannot rule the impact of hosting for the same reason. This late-blooming growth, particularly in non-OECD countries could be the result of infrastructure investments these countries made in order to host.

A second common explanation for less-than-expected economic gain is substitution. In order to service the influx of tourists into an area, some resources are diverted from other industries. Baade, Baumann, and Matheson (2010) show that gains in tourism industries were typically offset by losses in other industries during the Salt Lake City Winter Olympics in 2002. There is also substitution in tourism, as these large events repel tourists who would have visited the city for its other amenities (Matheson, Peeters, and Szymanski, 2012).

The unemployment rate performance shown in Figure 2 paints a similar picture. Unemployment rate paths again appear to fluctuate around a constant with the same expectation of non-OECD countries two or three years after hosting. However, unemployment rates are rising for this group. In other words, developing host countries tend to grow a few years after the event but at the expense of higher unemployment. Regardless of whether these changes are the result of hosting, the performance of macroeconomic indicators for host countries is mixed.

From this analysis, we conclude that there is little to distinguish a host from a non-host after controlling for its OECD membership. However, host cities experience higher GDP and unemployment growth in the years following an event. Put another way, there is little to

distinguish a host ex ante even after accounting for OECD status. However, hosting is correlated with higher GDP growth and unemployment after the event. This leaves us with two possible explanations. First, there may not be a causal relationship between hosting and GDP/unemployment. This is certainly the prevailing sentiment among researchers. Alternatively, there is something unique about countries, particularly non-OECD members, that we have not captured in this analysis.

Conclusions and Reflections on Brazil

Empirical research into the true economic impact of mega-events on host economies tends to show that major sporting events bring high costs with low rewards. The potential risks, but also possibly the potential rewards, from hosting mega-events may be even higher for developing nations. Mega-events may allow governments to overcome political constraints to allow beneficial infrastructure investments to be made, and the general investment needs of developing countries are likely to be higher than in industrialized nations. However, overcoming these political constraints comes at a very high cost in terms of money spent on unproductive investments in sport infrastructure and tournament operations, and there is also no guarantee that any all general infrastructure investments will provide a net positive return for the cities involved.

While the recent trend has been to “reward” developing countries with the opportunity to host mega-events such as the World Cup and the Olympics, the empirical evidence suggests that if rich countries want to promote economic development in poor countries, it would make more sense for high-income nations to explicitly keep these events out of the developing world and instead continue to award the games to rich countries that are better able to absorb more of the

associated costs than low-income countries. Alternatively, the industrialized world could subsidize these events when they are held in poor countries through sponsorship or by direct foreign assistance although seems unlikely that rich countries would be willing to subsidize poor countries' hosting efforts when the two are often in direct competition with one another for the rights to host in the first place.

Brazil's upcoming events may provide one additional avenue for potential economic gains. Mega-events can serve to "put the host on the map" leading to higher levels of future tourism, trade, and investment. As noted by Matheson (2008),

The other major intangible benefit of mega-events claimed by sports boosters is that of national and international exposure. Sports fans may enjoy their visit to the city and return later raising future tourist revenues for the area. Corporate visitors, it is claimed, may relocate manufacturing facilities and company headquarters to the city. Television viewers might decide to take a trip to the host city at some time in the future based on what they see during the broadcast of the mega-event. Finally, hosting a major event might raise perceptions of the city so that it becomes a "world class" city and travel destination. All of these claims are potential true although little empirical research has conclusively demonstrated any long-run connections between hosting mega-events and future tourism demand. There are not even any anecdotal examples of companies moving corporate operations to a city based on the hosting of a sporting event.

There are individual cases where mega-events do seem to have major influence on future demand, but it appears that a "perfect storm" is needed. Cities that are already on everyone's map, London for example, gain little in exposure from a major event since

they are already at nearly maximum exposure. Other cities such as Atlanta or many Winter Olympics hosts also gain little from exposure because the cities have little to offer potential tourists after their events. Advertising without a subject to advertise is likely to be an exercise in futility. Under very specific conditions, however, a “hidden gem” can raise its international profile by hosting a major event. This appears to have been the case with Barcelona, a city with great artistic, cultural, and architectural treasures, but also a city long overshadowed by European capitals such as Madrid, Rome, London, and Paris, as well as 40 years of fascist rule. By 2012, twenty years after their moment on the world stage, Barcelona was the fourth most visited city in Europe. Barcelona’s tourism experience, however, has not been replicated in the majority of Olympic hosts. Brazil in general, and Rio in particular, offer unparalleled travel opportunities for tourists, but may have been underutilized as vacation destinations by world travelers. It is possible that Brazil’s upcoming moments in the spotlight could bring long-run increases in global tourism, but it is important to note that Brazil is incurring very certain costs today for very uncertain future benefits.

It remains a widespread belief among countries that there are substantial national gains to be made from hosting these global events, but the evidence indicates that this is rarely the case. Samuel Johnson once wrote that second marriages reflect “the triumph of hope over experience.” Such thinking also pervades the vigorous competition among countries to host these exciting but economically questionable events.

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Table 1: Summer and Winter Olympic Games bids

Event	Bids from industrialized (OECD) countries	Bids from developing countries	Bids from Eastern Bloc or former Soviet states
Summer Olympics: 1896-1996	71 (82%)	9 (10%)	7 (8%)
Summer Olympics: 2000-2016	21 (49%)	19 (44%)	3 (7%)
Winter Olympics: 1924-1998	51 (93%)	1 (2%)	3 (5%)
Winter Olympics: 2002-2014	18 (56%)	3 (9%)	11 (34%)

Table 2: Examples of Mega-Event *ex ante* Economic Impact Studies

Event	Year	Impact	Source
World Cup (Japan)	2002	\$24.8 billion	Dentsu Institute for Human Studies, Finer (2002)
World Cup (South Korea)	2002	\$8.9 billion	Dentsu Institute for Human Studies, Finer (2002)
World Cup (South Africa)	2010	\$7.5 billion 198,400 jobs	Grant Thornton SA, Rihlamvu (2011)
World Cup (South Africa)	2010	\$12 billion 483,000 visitors	Grant Thornton SA, Voigt (2010)
Summer Olympics (Atlanta)	1996	\$5.1 billion 77,000 jobs	Humphreys and Plummer (2005)
Winter Olympics (Salt Lake City, UT)	2002	\$4.8 billion 35,000 jobs	Center for Public Policy and Administration, Pace (2006)
Winter Olympics (Vancouver, BC)	2010	\$10.7C billion 244,000 jobs	InterVISTAS Consulting (2002)

Table 3: Examples of Mega-Event *ex post* Economic Impact Studies

Event	Years	Variable	Impact	Source
Summer Olympics (Atlanta)	1996	Employment	3,500 - 42,000 jobs	Baade and Matheson (2002)
Summer Olympics (Atlanta)	1996	Employment	Approx. 75,000	Feddersen and Maennig (2012)
Winter Olympics	2002	Employment	4,000-7,000 jobs	Baumann, Engelhardt, and Matheson (2012a)
Winter Olympics	2002	Retail Sales	Positive, hotels Negative, retailers	Baade, Baumann and Matheson (2010)
World Cup	1994	Employment	Not statistically significant	Baumann, Engelhardt, and Matheson (2012b)
World Cup	2006	Employment	Not statistically significant	Allmers and Maennig (2009)
World Cup	1994	Personal Income	Down \$4 billion	Baade and Matheson (2004)
World Cup	2006	Personal Income	Not statistically significant	Allmers and Maennig (2009)
World Cup	2006	Employment	Not statistically significant	Allmers and Maennig (2009)

Table 4: Costs of Hosting Mega-Events

Event	Years	Type	Spending (millions, \$'11)	Source
Summer Olympics (Seoul)	1988	Sports Infrastructure General Infrastructure	\$2,856 \$4,870	Preuss (2008)
Summer Olympics (Barcelona)	1992	Sports Infrastructure General Infrastructure	\$1,731 \$14,517	Preuss (2008)
Summer Olympics (Atlanta)	1996	Sports Infrastructure General Infrastructure	\$798 \$999	Preuss (2008)
Summer Olympics (Sydney)	2000	Sports Infrastructure General Infrastructure	\$1,672 \$1,725	Preuss (2008)
Summer Olympics (Athens)	2004	Total Cost	\$13,813	Preuss (2008)
Summer Olympics (Beijing)	2008	Sports Infrastructure Total Spending (est.)	\$1,758 \$45,000	Preuss (2008); Baade and Matheson (2012)
Summer Olympics (London)	2012	Total Cost	\$15,000 - \$20,000	Burns (2012)
Summer Olympics (Rio)	2016	Total Cost	\$18,000	Zimbalist (2011)
Winter Olympics (Nagano)	1998	Total Cost	Over \$14,000	Longman (1998)
Winter Olympics (Turin)	2006	Total Cost	\$4,100	Payne (2008)
Winter Olympics (Vancouver)	2010	Total Cost	C\$5,900	Economist (2011)
Winter Olympics (Sochi, Russia)	2014	Total Cost	\$51,000 (estimated)	RT.com (2013)
World Cup (Japan /South Korea)	2002	Sports Infrastructure	\$2,000 (S. Korea) \$4-\$5,600 (Japan)	Sloan (2002)
World Cup (Germany)	2006	Sports Infrastructure	\$1,870	Downie (2012)
World Cup (South Africa)	2010	Sports Infrastructure Total Cost	\$1,300 \$3,900	(Voigt, 2010; Baade and Matheson, 2011).
World Cup (Brazil)	2014	Sports Infrastructure General Infrastructure	\$3,680 \$13,000 (est.)	Downie (2012)
World Cup (Russia)	2018	Sports Infrastructure Total Cost	\$7,500 (est) \$44,000 (est.)	Kuvshinova (2013)
World Cup (Qatar)	2022	Total	\$200,000 (est.)	AP (2013)

Table 5: Hosts
 OECD Members are Starred

Summer Olympics	Winter Olympics	World Cup
Moscow, U.S.S.R. 1980	Lake Placid, U.S.A.* 1980	Spain* 1982
Los Angeles, U.S.A.* 1984	Sarajevo, Yugoslavia 1984	Mexico 1986
Seoul, South Korea 1988	Calgary, Canada* 1988	Italy* 1990
Barcelona, Spain* 1992	Albertville, France* 1992	U.S.A.* 1994
Atlanta, U.S.A.* 1996	Lillehammer, Norway* 1994	France* 1998
Sydney, Australia* 2000	Nagano, Japan* 1998	South Korea* & Japan* 2002
Athens, Greece* 2004	Salt Lake City, U.S.A.* 2002	Germany* 2006
Beijing, China 2008	Turin, Italy* 2006	South Africa 2010
London, U.K.* 2012	Vancouver, Canada* 2010	Brazil 2014
Rio de Janeiro, Brazil 2016	Sochi, Russia 2014	

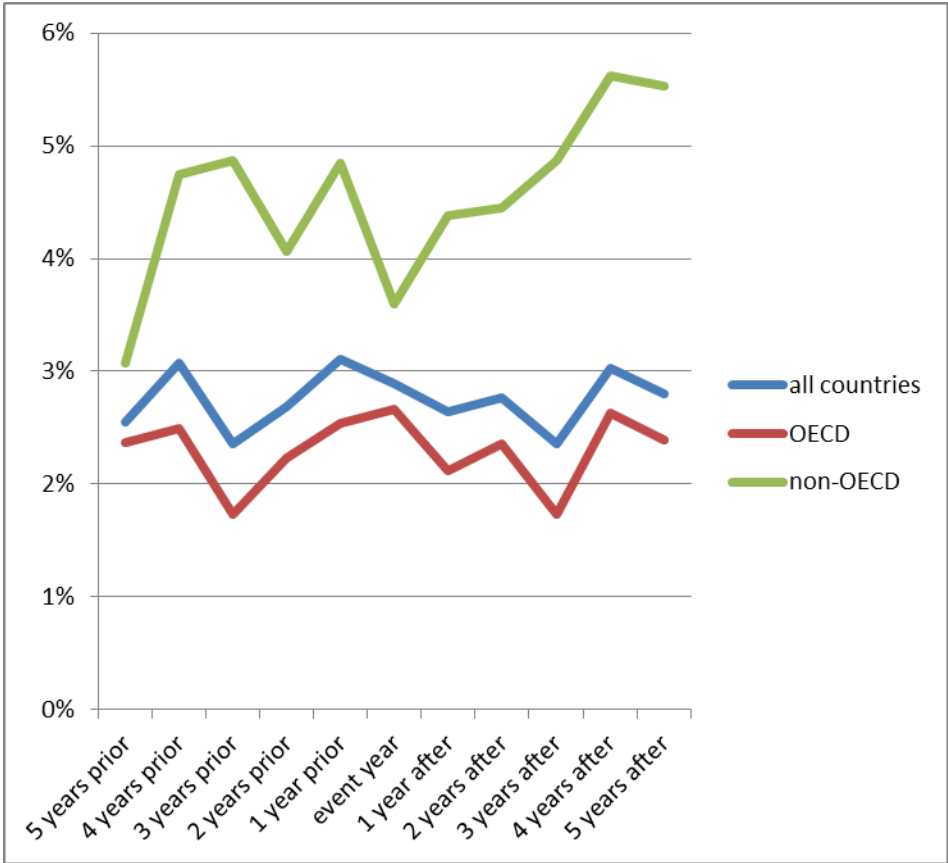
Table 6: Mean GDP Growth, Unemployment, and Exports Growth Rates
(Standard Deviations in Parentheses)

	Mean GDP Growth Rate	Mean Unemployment Rate	Mean Exports Growth Rate
<i>Host vs. Non-Host</i>			
Host Countries	2.77 (1.91) <i>n</i> = 17	9.57 (6.72) <i>n</i> = 17	5.22 (2.94) <i>n</i> = 17
Non-Host Countries	3.98 (1.98) <i>n</i> = 127	9.02 (5.25) <i>n</i> = 73	7.41 (5.53) <i>n</i> = 123
<i>Only OECD</i>			
Host Countries	2.13 (0.62) <i>n</i> = 11	8.32 (3.82) <i>n</i> = 11	4.18 (1.91) <i>n</i> = 11
Non-Host Countries	2.57 (0.88) <i>n</i> = 12	6.45 (2.52) <i>n</i> = 12	5.74 (2.37) <i>n</i> = 12
<i>Only non-OECD</i>			
Host Countries	3.95 (2.89) <i>n</i> = 6	11.86 (10.29) <i>n</i> = 6	7.15 (3.68) <i>n</i> = 6
Non-Host Countries	4.11 (2.01) <i>n</i> = 115	9.61 (5.50) <i>n</i> = 61	7.55 (5.76) <i>n</i> = 111

Table 7: Mean GDP Growth, Unemployment, and Exports Growth Rates
(Standard Deviations in Parentheses)

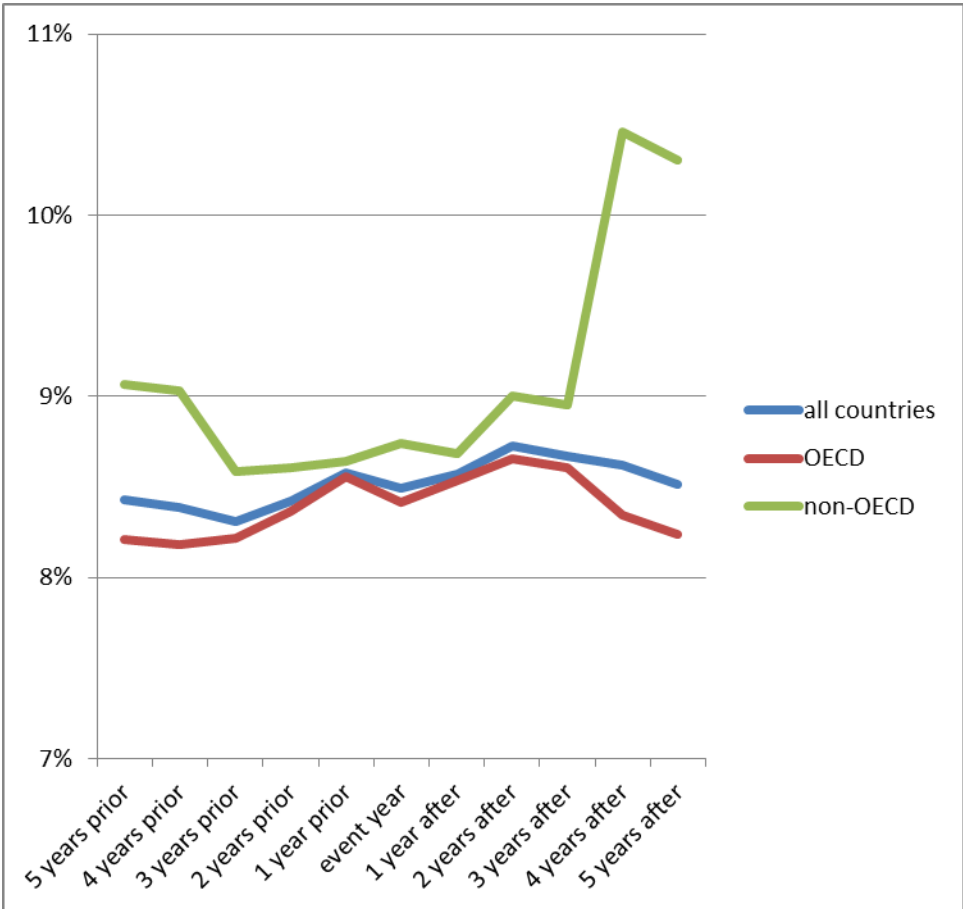
	Mean GDP Growth Rate	Mean Unemployment Rate	Mean Exports Growth Rate
<i>OECD vs. Non-OECD</i>			
OECD Countries	2.35 (0.78) <i>n</i> = 23	7.34 (3.27) <i>n</i> = 23	4.99 (2.25) <i>n</i> = 23
Non-OECD Countries	4.12 (2.04) <i>n</i> = 121	9.72 (5.99) <i>n</i> = 67	7.57 (5.64) <i>n</i> = 117
<i>Only Host Countries</i>			
OECD Countries	2.13 (0.62) <i>n</i> = 11	8.32 (3.82) <i>n</i> = 11	4.18 (1.91) <i>n</i> = 11
Non-OECD Countries	3.95 (2.89) <i>n</i> = 6	11.86 (10.29) <i>n</i> = 6	7.15 (3.68) <i>n</i> = 6
<i>Only Non-Host Countries</i>			
OECD Countries	2.57 (0.88) <i>n</i> = 12	6.45 (2.52) <i>n</i> = 12	5.74 (2.37) <i>n</i> = 12
Non-OECD Countries	4.11 (2.01) <i>n</i> = 115	9.61 (5.50) <i>n</i> = 61	7.55 (5.76) <i>n</i> = 111

Figure 1: Mean Growth Rates of Real Gross Domestic Product Hosts Prior, During, and After the Event



Note: Each time frame constructs a mean, but the number of countries varies because of sample frame restrictions. For all countries, each mean is based on between 23 and 25 countries. For OECD countries, each mean is based on 17 and 20 countries. For non-OECD countries, each mean is based on between 3 and 6 countries.

Figure 2: Mean Unemployment Rates of Hosts Prior, During, and After the Event



Note: Each time frame constructs a mean, but the number of countries varies because of sample frame restrictions. For all countries, each mean is based on between 23 and 26 countries. For OECD countries, each mean is based on 17 and 20 countries. For non-OECD countries, each mean is based on between 3 and 6 countries.