

## **The Impact of Mega-events on Inbound Tourism Demand**

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### **Abstract**

In this paper, the impact of large sporting events, or “mega-events” on tourism demand in host countries is examined. Using OLS, forty countries are analyzed for the period of 1995-2010. The mega-events examined are the FIFA World Cup, Summer Olympic Games, and Winter Olympic Games and each event is analyzed in a separate regression. For all three events, this paper finds no change in tourism demand in host countries during the time period leading up to the event or for the year of the event. For the three years after the event, the Summer Olympic Games is correlated with an increase in tourism demand, while no change is found for the FIFA World Cup or the Winter Olympics.

## **I. Introduction**

Much of the literature on mega-events focuses on the economic impact of the event on the host country. Among these studies, ex ante predictions of the economic impact of future mega-events are particularly common. For instance, a potential host country will often obtain ex ante analyses of the potential costs and benefits of hosting the event.

However, the ex ante projections of mega-events' economic impacts are often found by post-event evaluations to overestimate the benefits of hosting such events. Miscalculations of pre-event analyses can be related to substitution effect, crowding out, or leakages (Matheson, 1996).

Increased tourism is often perceived as a major source of potential benefit and an incentive for hosting major events. Thus, the examination of whether increases in tourism actually exist will help countries make informed decisions about hosting mega-events. Further, countries already planning to host mega-events will be better able to analyze how much cost can be incurred for the event to remain profitable.

In this paper, I examine whether large sporting events, or "mega-events", impact inbound tourism for host countries. I investigate the influence of the Summer Olympics, Winter Olympics, and FIFA World Cup on tourism demand in forty countries from 1995 to 2010. This paper will contribute to the discussion on whether the investment of public resources to host mega-events is a beneficial allocation of goods and services.

The rest of this paper is organized as follows: Section 2 is a review of the literature pertaining to the effects of mega-events on host countries, Section 3 discusses the methodology used to examine tourism demand, Section 4 explains data used and from where they were obtained, Section 5 examines the findings of my regressions, and Section 6 discusses the implications of these results.

## **II. Literature Review**

Countries compete against each other to earn the coveted opportunity to host major sporting events, such as the Olympics (Summer and Winter) and the FIFA World Cup. Expecting economic benefits as well as intangible and political gains, often these countries compete as ferociously as the athletes actually participating in the events. Major sporting events are seen as economic initiatives by a host location because of the expected boost in the host's economy through increased tourism, employment, and international media exposure. Further, hosts may gain from intangible benefits of the event, such as: increased political clout or psychological value added for host residents (Matheson, 1996).

However, in order to earn a host position, countries are expected to invest heavily in infrastructure, sports facilities, and security to meet the needs of the event (Teigland, 1999).

Proponents of mega-events often argue that the infrastructure built for the event will leave a lasting legacy for the host country. Improved public transportation, new sports facilities, or increased hotel services could encourage later tourism within the host country (Spilling, 1998). For example, Teigland (1999)

finds increased tourism near Lillehammer, Norway after hosting the 1994 Winter Olympics. Particularly, the communities with new ski facilities built for the Winter Olympic Games experienced increased tourism demand before the event and up to three years after the event. He notes the increased tourism growth is concentrated around the host city, where infrastructure and ski facilities were improved for the event.

However, Higham (1999) argues mega-event facilities are under used after the event ends. Higham emphasizes that hosting smaller scale sporting events creates incentives for smaller scale infrastructure development, which is more appropriately sized for the host location after the event.

Another expected benefit for hosting major events is media exposure for the host city. Attending fans may enjoy their visit to the host city and return for later tourism or encourage others to visit through word of mouth. Also, television viewers could be compelled to plan a trip after seeing images of the city (Matheson, 2006).

Media exposure for mega-events can also have the opposite effect for hosts. A poorly executed or controversial mega-event could lead to a negative legacy for the host location. For instance, the terrorist attacks in Munich or the bribery controversy in Salt Lake City, Utah did not lead to positive media exposure for the hosts.

Thus, the examination of the long-term impacts of major sporting events on tourism demand is critical for improved cost-benefit analyses for potential host nations. Particularly, an empirical study of the impact of mega-events focused on

tourism demand after the actual event will help other nations bidding for mega-events determine whether the cost incurred from infrastructural development, security expenses, and facility creation or improvement is worth the perceived benefits.

### III. Empirical Strategy

To investigate the effects of mega-events on tourism in a host location, forty countries and three different mega-events (FIFA World Cup, Summer Olympic Games, and Winter Olympic Games) are examined using three separate regressions.<sup>1</sup> The results are estimated with the following equation:

$$Tourist\_Arrivals = \alpha + \beta_1 GDPpercapita_{it} + \beta_2 Population_{it} + \beta_3 PPP_{it} + \beta_4 exchange\_rate_{it} + \beta_5 aftereventyeardummy_{it} + \beta_6 eventyeardummy_{it} + \beta_7 beforeeventyeardummy_{it} + \mu$$

Where *Tourist\_arrivals* represents the amount of overnight visitors to country *i* in year *t*, *GDPpercapita* is the GDP per person in each country, *Population* is the total population, *PPP* is the purchasing power parity conversion factor, *exchange\_rate* is the real effective exchange rate index, *eventyeardummy* is a dummy variable for the year a mega-event was hosted in a country, *aftereventyeardummy* is a dummy variable for the three years after the event is hosted by a country,

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<sup>1</sup> Algeria, Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Colombia, Denmark, Egypt, Finland, France, Germany, Greece, India, Indonesia, Iran, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Romania, Russia, South Africa, South Korea, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States

*beforeeventyeardummy* is a dummy variable for the three years before the event is hosted, and  $\mu$  is an error term.

To examine each event separately, any country that hosted a mega-event, besides the event of interest during the time period was omitted from the data set. For example, the regression to investigate the impact of hosting the FIFA World Cup on tourism used a data set that excluded the countries that hosted either the Summer or Winter Olympic Games between 1995 and 2010.

Also, countries attract different amounts of tourism for unique factors, such as: World Heritage sites, beautiful scenery, or museums. Thus, in all regressions, I control for country specific fixed-effects.

#### **IV. Data**

The data for the total overnight visitors are obtained from the World Tourism Organization, a specialized agency of the United Nations, (UNWTO). Specifically, the data on inbound tourism is from the UNWTO's *Compendium of Tourism Statistics*. The data is collected by the UNWTO through administrative records and border surveys. For Japan and S. Korea, data on arrivals could not be separated between day visitors and overnight visitors. Thus, "total foreign arrivals" is used as a proxy variable for overnight arrivals to these two countries.

The data for Purchasing Power Parity (PPP) conversion factor, GDP per capita, total population, and the real effective exchange rate index are acquired from the World Bank *Data Catalog*.

According to the World Bank, the PPP conversion factor measures the “number of units of a country’s currency required to buy the same amounts of goods and services in the domestic market as [a] U.S. dollar would buy in the U.S.”.

The GDP per capita variable is the Gross Domestic Product per person in a country and is often used a measure of a country’s wealth. Population is the total population for each country in a given year. Population is included in the regression because the size of a country can indicate the capacity of the guest services, infrastructure, and security of a country. Countries with larger populations would be expected to be able to host greater amounts of tourists; however, very populous countries may experience less tourism because of crowding.

Real effective exchange rate index is the measure of a currency compared to a weighted average of several foreign currencies divided by a price deflator. The year 2005 is the base year for this data set, meaning the year 2005 = 100. The World Bank obtained the data for this indicator from the International Monetary Fund’s International Financial Statistics. This variable controls for differences in countries’ currencies. This information is valuable because exchange rates will impact how expensive or inexpensive it is to travel within a country.

Variables on mega-events, specifically host countries for particular events, were obtained from the events’ official websites ([www.olympic.org](http://www.olympic.org) for Summer and Winter Olympics; [www.fifa.com/worldcup](http://www.fifa.com/worldcup) for FIFA World Cup).

**Table 1. Variable Summary**

Variable	Obs	Mean	Std. Dev.	Min	Max
Tourist arrivals	507	15282.27	17464.69	369	80853
Population, total	507	1.25E+08	2.79E+08	4360000	1.34E+09
GDP per capita	507	21241.24	17396.54	255.50	93366.80
Real effective exchange rate index	507	100.39	13.25	50.96	159.44
PPP conversion factor	507	61.50	207.74	0.06	1248.63

## V. Results

For all the regressions, no significant change in tourism is found for the year the mega-event is hosted or the three years before the mega-event. However, the three years after the event is found to have a statistically significant increase for the Summer Olympic Games regression. For the three years after hosting the Summer Olympic Games, host countries are predicted to experience an increase of over 6,300 tourists. According to European Commission's *Tourism Statistics*, the average tourist spends over \$1,000 (770 euros) on a trip abroad. Thus, from this finding, Summer Olympics hosts should expect to gain approximately \$6.3 million from extra tourist expenditures.

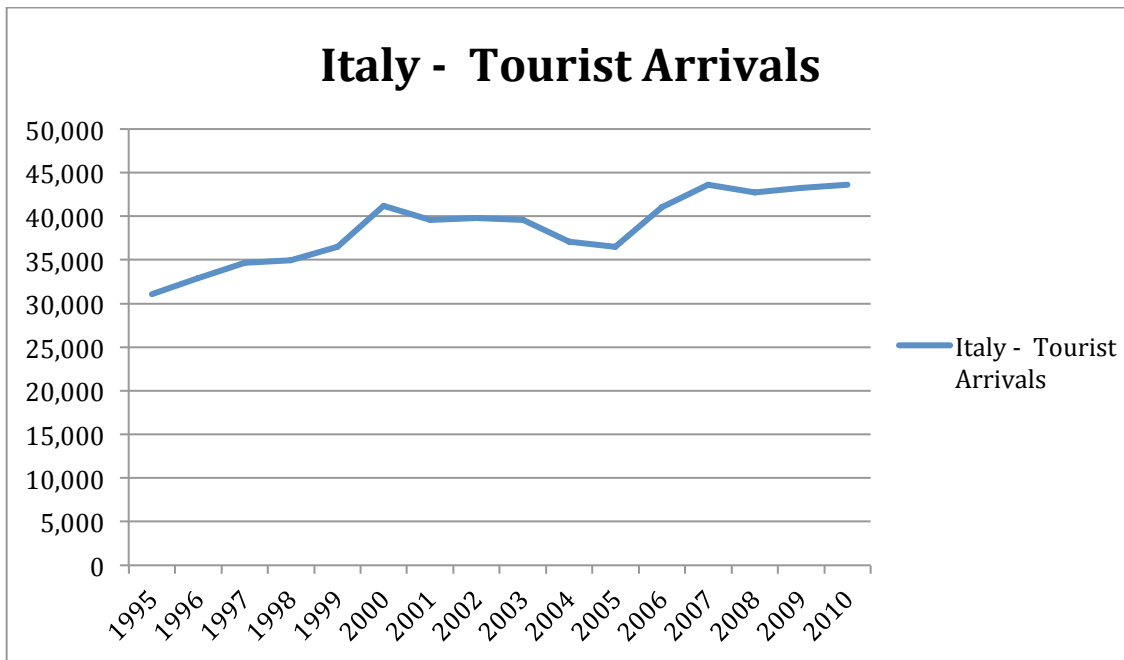
This increase in tourism demand can be seen in Greece, which hosted the 2004 Summer Olympic Games (Graph 2). Greece experiences a drop in tourism the year it hosted, then for the three years after the event (2005-2007) experiences a growth in tourism.



**Graph 2. Greece: Tourist Arrivals, Summer Olympics Host 2004**

The increased tourism after the Summer Olympics could be the result of increased media coverage, improved branding, or new or revamped infrastructure and facilities.

Whereas, in Italy, little change in tourism rates is seen during the period before, during, or after hosting the 2006 Winter Olympics. Being a popular tourist destination with significant infrastructure and guest services, Italy's tourism industry benefitted little from hosting the event.

**Graph 2. Italy: Tourist Arrivals, Winter Olympics Host 2006**

Further, in all three regressions, the coefficient for GDP per capita is found to be statistically significant and positive. As expected, an increase in a country's wealth, as measured in GDP per capita, is associated with an increase in tourism demand. This is understandable given a wealthier country can afford better security, infrastructure, and guest services and will most likely have more political stability. Since the aforementioned characteristics of wealthy countries are attractive to potential visitors, it is likely that an increase in GDP per capita would coincide with an increase in tourism demand.

Although PPP conversion factor and population are found to be statistically significant in some regressions, they are not economically significant results. A single unit increase in the PPP conversion factor is associated with an increase of

around three tourists. Similarly, population is statistically significant, but the coefficient is zero.

## **VI. Discussion**

The results of this study demonstrate no increase in tourism demand for host countries during the years preceding the mega-event or the year of the event. However, for hosts of the Summer Olympic Games, an increase in tourism demand is found for the three years after the mega-event.

The difference between mega-events in regards to long-term effects on host country's tourism demand can be explained by the season, the size of the event, or event location. The Summer Olympics occur during peak tourism season compared to the Winter Olympics, thus locations for the Winter Olympics may not be year round tourist destinations because they are selected for winter sports. Thus, Winter Olympics hosts may not experience as much of a legacy in tourism demand, which might explain why a long-term change in national tourism is not seen.

Additionally, the difference in results from Higham's finding of increased tourism demand after the Winter Olympics in Lillehammer, Norway may be explained by the examination of national tourism data versus city specific data. While the increased tourism demand in Lillehammer found by Higham was a statistically significant change in tourism for the city, the increase may not show up in national tourism rates.

The lack of increased tourism during the year of the event may be a result of crowding out. With the event, prices for accommodations or transportation might

increase if there is limited capacity. With the increase in cost, price sensitive tourist may elect to travel to the destination at a different time.

Another explanation for the lack of a significant increase during the event year is tourists, who are not interested in participating in the mega-event, change their planned travel time to avoid congestions or hooliganism from fans.

During the three years leading up to the event, new construction projects and revamping of older infrastructure and services occurs to prepare for the upcoming event. Concerns about construction on tourist sights or transportation infrastructure could deter tourists, which could off-set any increase in tourism demand which may occur because of increased media coverage or branding from earning the bid. Alternatively, tourists could be indifferent about a country receiving a bid to host a mega-event, thus no change in tourism demand is seen.

These results suggest countries bidding to host a mega-event, particularly the FIFA World Cup or Winter Olympic Games, should limit the expected impact of tourism demand when conducting cost-benefit analyses. The absence of an increase in tourist arrivals the year of the event suggests hosting certain mega-events does little to improve tourism. Thus, spending on infrastructure and tourism-related sectors by countries hoping to earn bids or in order to host events should not be in excess. Countries accruing costs should be aware these costs might not lead to an increase in tourism demand.

Further analysis of the impact of hosting mega-events on tourism demand in host countries is suggested. A study using city-specific tourist data could delve

further into the differences in tourism demand for mega-events hosted by cities versus events hosted by countries.

**Table 2. List of Mega-events, 1995-2010**

Year	Summer Olympics	Winter Olympics	FIFA World Cup
1995			
1996	USA		
1997			
1998		Japan	France
1999			
2000	Australia		
2001			
2002		USA	South Korea, Japan
2003			
2004	Greece		
2005			
2006		Italy	Germany
2007			
2008	China		
2009			
2010		Canada	South Africa

**Table 3. Results of Regression for FIFA World Cup**

VARIABLES	Tourist Arrivals
PPP conversion factor	2.90** (2.131)
Population, total	0.00** (2.684)
GDP per capita	0.15** (2.723)
Year of FIFA World Cup	-995.97 (-0.756)
Three years after event	1,003.43 (1.066)
Three years before event	-2,881.36 (-0.967)
Real effective exchange rate index	24.89 (1.429)
Constant	5,938.73*** (3.091)
Observations	396
R-squared	0.983
Robust t-statistics in parentheses	
*** p<0.01, ** p<0.05	

**Table 4. Results of Regression for Summer Olympic Games**

Column1	Column2
VARIABLES	Tourist Arrivals
PPP conversion factor	-2.16 (-0.822)
Population, total	0.00 (1.162)
GDP per capita	0.14** (2.689)
Year of Summer Olympic Games	5,622.19 (1.444)
Three years after event	6,328.57* (1.743)
Three years before event	5,380.43 (1.481)
Real effective exchange rate index	21.99 (1.152)
Constant	-2,206.31 (-0.305)
Observations	380
R-squared	0.957
Robust t-statistics in parentheses	
** p<0.05, * p<0.1	

**Table 5. Winter Olympics Regression Results**

Column1	Column2
VARIABLES	Tourism Arrivals
PPP Conversion Factor	2.97** (2.704)
Population, total	0.00*** (3.068)
GDP per capita	0.13** (2.582)
Year of Winter Olympics	-2,796.11 (-1.208)
Three Years before event	-2,490.53 (-1.715)
Real effective exchange rate index	17.73 (0.951)
Constant	5,929.45*** (3.087)
Observations	365
R-squared	0.974
Robust t-statistics in parentheses	
*** p<0.01, ** p<0.05	

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