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Abstract

That paper provides an overview of the economics of sports mega-events as well as review of the existing literature in the field. The paper describes why boosters' *ex ante* estimates of the economic impact of large sporting events tend to exaggerate the net economic benefits of these events and surveys the results of a large number of *ex post* studies of exploring the true impact of mega-events.

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Introduction

Sports boosters often claim that major sporting events, so-called “mega-events,” inject large sums of money into the cities lucky enough to host them. Promoters envision hoards of wealthy sports fans descending on a city’s hotels, restaurants, and businesses, and showering them with fistfuls of dollars. For example, the National Football League (NFL) typically claims an economic impact from the Super Bowl of around \$300 to \$400 million¹, Major League Baseball (MLB) attaches a \$75 million benefit to the All-Star Game², and up to almost \$250 million for the World Series³, and the estimated effect of the National Collegiate Athletic Association (NCAA) Men’s Basketball Final Four ranges from \$30 million⁴ to \$110 million⁵. Multi-day events such as the summer or winter Olympics or soccer’s World Cup produce even larger figures. See Table 1 for a list of published economic impact estimates for a variety of large sporting events.

Of course, leagues, team owners, and event organizers have a strong incentive to provide economic impact numbers that are as large as possible in order to justify heavy public subsidies. The NFL and MLB use the Super Bowl and baseball’s All-Star Game as carrots to prompt otherwise reluctant city officials and taxpayers to provide lavish funding for new stadiums to the great financial benefit of the existing owners. For example, in baseball, of the 15 new major league stadiums built between 1970 and 1997, 13 were selected by MLB to host an All-Star Game within five years of their construction⁶. Similarly, during a visit to the Dallas-Fort Worth area just before a crucial vote on public funding for a new stadium, NFL Commissioner Paul Tagliabue suggested that the construction of a new stadium would lead to the opportunity for the metro area to host the Super Bowl in the next decade. Since the NFL touts economic benefits from hosting the Super Bowl of \$300 to \$400 million, an amount that meets or exceeds the

proposed \$325 million public subsidy for the stadium, in effect, Commissioner Tagliabue was saying that combined with a Super Bowl, Arlington would be getting a new stadium for free.

With an event like the Olympics, the huge cost of hosting the event to the standards now required by the International Olympic Committee (IOC), as well as providing adequate security, almost necessitates an infusion of taxpayer money. For example, while on paper the 2002 Winter Olympics in Salt Lake City made a profit, the cost figures did not include millions of dollars of additional security provided by the U.S. Department of Defense at no cost to the local organizing committee. For the 2004 Summer Games, the government in Athens spent \$1.5 billion on security alone. These figures illustrate why organizers often rely on lofty reports that promise huge monetary windfalls to host cities. Since many economic impact studies are commissioned by owners, leagues, or event organizers, which stand to directly benefit from the public subsidies such reports are designed to elicit, one must question whether such studies can be believed.

***Ex ante* economic modeling and its deficiencies**

A typical predictive, or *ex ante*, economic impact study of the type used by event promoters estimates the number of visitors an event is expected to draw, the number of days each spectator is expected to stay, and the amount each visitor will spend each day. Combining these figures, an estimate of the “direct economic impact” is obtained. This direct impact is then subjected to a multiplier, usually around two, to account for the initial round of spending recirculating through the economy. This additional spending is known as “indirect economic impact.” Thus, the total economic impact is double the size of the initial spending.

For example, in assessing the impact of Super Bowl XXVIII on the City of Atlanta and the State of Georgia, Jeffrey Humphreys (1994) estimated that the event created 2,736 jobs and

had an impact of \$166 million on the Georgia economy⁷. Of the \$166 million, Humphreys estimated direct and indirect economic impact of \$76 and \$90 million, respectively. The direct impact was derived from estimating the number of “visitor days” (306,680) and multiplying that statistic by the average estimated per diem expenditures per visitor (\$252). The indirect or induced economic impact was estimated using the Regional Input-Output Multiplier System (RIMS II) model developed by the Bureau of Economic Analysis. More recent NFL’s estimates of the economic impact of the Super Bowl arrive at figure roughly double that of Humphrey’s 1994 study in part due to general inflation in the economy, but most of the difference is a result of increases in the assumed number of visitors and the daily spending attributable to each of them.

While such an estimation method is relatively straight-forward, academic economists have been quick to point out the failings of such *ex ante* studies as they often rely on poor methodology and also suffer from several theoretical problems.

First, many booster estimates are wildly optimistic about the number of potential guests and their spending habits. In March 2005, Denver tourism officials predicted 100,000 visitors for the National Basketball Association (NBA) All-Star Game. Considering that the Pepsi Center, the game’s venue, only holds 20,000 fans, and that Denver has only about 6,000 hotel rooms, it is not clear exactly how such an influx of basketball fans would be even be possible much less probable.

Similarly, in other cases, the size of the estimates themselves strain credulity. The Sports Management Research Institute estimated the direct economic benefits of the U.S. Open Tennis tournament in Flushing Meadows, New York at \$420 million for the tri-state area, more than any other sports or entertainment event in any city in the United States. This sum represents 3% of

the total annual direct economic impact of tourism for New York⁸. It is simply impossible to believe that 1 in 30 tourists to New York City in any given year are visiting the city solely to attend the U.S. Open. The projected \$6 billion impact of the World Cup proposed for South Africa in 2006 suggested that soccer games and their ancillary activities would have represented over 4 percent of the entire gross domestic product of the country in that year⁹. Along the same lines, a study by the Dentsu Institute for Human Studies estimated a \$24.8 billion impact from the 2002 World Cup for Japan and an \$8.9 billion impact for South Korea¹⁰. As a percentage of total national income, these figures represent 0.6 and 2.2 percent of the total Japanese and South Korean economies, respectively.

In other cases, the variation in estimated benefits alone is enough to question the validity of the studies. A series of studies of the NBA All-Star game produced numbers ranging from a \$3 million windfall for the 1992 game in Orlando to a \$35 million bonanza for the game three years earlier in Houston¹¹. Similarly, the 1997 NCAA Women's Basketball Final Four was estimated to have an economic impact of \$7 million on the local economy of Cincinnati, but the same event was predicted to produce a \$32 million impact on the San Jose economy just two years later¹². The five- or ten-fold disparity in the estimated impact for the same annual event serves to illustrate the *ad hoc* nature of these studies. In some cases, economic impact figures appear to be completely fabricated. While city or league officials may suggest a certain monetary figure from a particular event, when pressed on the details, the "missing study" syndrome arises¹³.

Sports boosters also often cite civic pride or national exposure as a primary benefit of mega-events and of sports in general. In many cases, it is undoubtedly true that mega-events bring intangible psychological value to the communities that host them. The 1995 Rugby World

Cup in South Africa represented an opportunity for the country to announce its re-emergence as a full member of not only the world's sporting community but also 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 country¹⁴. Similarly, Ray Nagin, the mayor of New Orleans, pointed to the return of the NFL to the city in September 2006 as an important symbol to the rest of the country that the city was fully on the road to recovery from Hurricane Katrina which had devastated the city the year previously.

Obviously, measuring such benefits is fraught with difficulty, and academic studies are mixed on the subject. Most researchers find no correlation between economic growth and the presence of new sports facilities, franchises, or events suggesting that the intangible value of these events tends not to translate into any measurable benefits to the host cities. (See, for example, Robert Baade¹⁵, Dennis Coates and Brad Humphreys¹⁶, and Phil Porter¹⁷.) On the other hand Coates and Humphreys did find that cities that win the Super Bowl (not the host cities) tend to experience a statistically significant increase in their per capita incomes following the game, a result they attribute to higher productivity due to a happier labor force¹⁸. In other words, it is certainly possible that something intangible (happiness) can produce something tangible (productivity and real income). Coates and Humphreys' claim of higher per capita personal incomes in winning cities, however, has been at least in part refuted by Victor Matheson¹⁹.

At least one study by Gerald Carlino and Edward Coulson has found that rental housing prices are higher in cities with professional sports teams indicating a higher willingness of buyers to pay for housing in cities with these amenities²⁰, and this idea could, in theory, be applied to

cities that host mega-events as well. Dennis Coates, Brad Humphreys and Andrew Zimbalist, however, have suggested that Carlino and Coulson's results are highly susceptible to the model specification used in estimating the results²¹. It is also clearly true that cities with professional teams, since they are generally larger metropolitan areas, also can offer many other cultural attractions besides professional sports in comparison to smaller cities which may also contribute to the higher willingness to pay for housing in these cities.

Of course, the use of sporting events to provide entertainment for the masses has been around for centuries. The term "bread and circuses" dates from the first century Roman empire where extravagant games were held in conjunction with giveaways of subsidized food in order to pacify the citizenry and reduce urban unrest.

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 perception of the city so that it becomes a "major league" or "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.

While intangible benefits to mega-events certainly exist, two caveats must be mentioned. First, the presence of a mega-event may bring with it intangible costs as well as benefits. For

example, the publicity associated with a sporting event may not always place a city in a positive light. Following the riots that occurred during the National Basketball Association finals in Detroit in the early 1990s, the city's national image basked in the glow of car fires and burning buildings rather than the goodwill associated with an NBA championship, and the bribery scandal that surrounded the 2002 Winter Olympics in Salt Lake City certainly didn't enhance the city's reputation. Similarly, the international reputations Munich and Atlanta were tarnished by the terrorist events that occurred during the Olympic Games held in their respective cities.

In addition, if the lion's share of the benefits of an event is intangible, this is a significant cause for concern since this type of benefit is most likely to be based upon assumption and guesswork. While sports boosters often suggest that the exposure a city receives during a mega-event is invaluable to the area, in the words of University of Chicago economist Allen Sanderson, "Anytime anybody uses the word 'invaluable,' they are usually too lazy to measure it or they don't want to know the answer."

Even when *ex ante* studies are done carefully and considered manner, they suffer from three primary theoretical deficiencies: the substitution effect, crowding out, and leakages. The substitution effect occurs when consumers spend money at a mega-event rather than on other goods and services in the local economy. A local resident who goes to an All-Star Game when it is in town is spending money at the game that likely would have been spent locally elsewhere in the absence of the game. Therefore, the local consumer's spending on a sporting event is not new economic activity, rather a reshuffling of local spending. For this reason, most economists advocate that spending by local residents be excluded from any economic impact estimates.

Even including only out-of-region visitors in impact studies may still result in inflated estimates if a large portion of the non-local fans at a game are "casual visitors," that is out-of-

town guests who go to a sporting event, but are visiting the host city for reasons other than the sporting event itself. For example, college professor at an academic conference may buy a ticket to a local game, and therefore the ticket would be counted as a direct economic impact of the sports contest. The professor, however, would have come to the city and spent money on hotels and restaurants in the absence of the sporting match, and again the money spent at the game substitutes for money that would have spent elsewhere in the local economy.

Similarly, *ex ante* estimates may be biased upwards if event guests engage in “time-switching,” which occurs when a traveler rearranges a planned visit to a city to coincide with a mega-event. One example of time-switching is someone who has always wanted to visit Hawaii who plans a trip during the NFL’s Pro-Bowl. While the Pro-Bowl did influence the tourist’s decision about *when* to come, it did not affect the decision *whether* to come. Therefore total tourism spending in Hawaii is unchanged; the Pro-Bowl simply affects the timing of such spending.

In the case of mega-events, the amount of new spending that is new to the economy is thought to be quite large in comparison to the total amount of spending, since these “premier” events are thought to attract large audiences from outside the local economy, many of whom come specifically for the event. Whereas 5 percent to 20 percent of fans at a typical MLB game are visitors from outside the local metropolitan area, the percentage of visitors at an event like an All-Star Game or the Super Bowl is thought to be much higher²². High prices charged by hotels and other businesses in the hospitality industry also tend to dissuade casual visitors during mega-events.

A second source of bias is “crowding out,” which is the congestion caused by a mega-event that dissuades regular recreational and business visitors from coming to a city during that

time. Many large sporting events are staged in communities that are already popular tourist destinations. If hotels and restaurants in the host city normally tend to be at or near capacity throughout the time period during which the competition takes place, the contest may simply supplant rather than supplement the regular tourist economy. In other words, the economic impact of a mega-event may be large in a gross sense but the net impact may be small. Scores of examples of this phenomenon exist. As a case in point, during the 2002 World Cup in South Korea, the number of European visitors to the country was higher than normal, but this increase was offset by a similar sized decrease in number of regular tourists and business travelers from Japan who avoided South Korea due to World Cup hassles. The total number of foreign visitors to South Korea during the World Cup in 2002 was estimated at 460,000, an figure identical to the number of foreign visitors during the same period in the previous year²³.

A third source of bias comes from leakages. While money may be spent in local economies during mega-events, this spending may not wind up in the pockets of local residents. The taxes used to subsidize these events, however, are paid for by local taxpayers. The economic multipliers used in *ex ante* analyses are calculated using complex input-output tables for specific industries grounded in inter-industry relationships within regions based upon an economic area's normal production patterns. During mega-events, however, the economy within a region may be anything but normal, and therefore, these same inter-industry relationships may not hold. Since there is no reason to believe that the usual economic multipliers are the same during mega-events, any economic analyses based upon these multipliers may, therefore, be highly inaccurate²⁴.

In fact, there is substantial reason to believe that during mega-events, these multipliers are highly overstated, which overestimates the true impact of these events on the local economy.

Hotels, for example, routinely raise their prices during mega-events to three or four times their normal rates. The wages paid to a hotel's workers, however, remain unchanged, and indeed workers may be simply expected to work harder during times of high demand without any additional monetary compensation. As a hotel's revenue increases without a corresponding increase in costs, the return to capital (as a percentage of revenues) rises while the return to labor falls. Capital income is far less likely to stay within the area in which it is earned than labor income, and therefore, one might expect a fall in the multiplier effect during mega-events due to these increased leakages²⁵.

Most league-sponsored economic impact studies not only potentially exaggerate the benefit-side of the cost-benefit equation but also often completely ignore the costs of hosting such an event. Most leagues and event organizers require sparkling new stadiums and arenas before awarding the privilege of hosting a mega-event to a city. The NBA and MLB as well as the National Hockey League and Major League Soccer use their All-Star games to showcase new facilities and explicitly use the promise of hosting these events as an enticement to cities to build new stadiums and arenas. This is not a uniquely American phenomenon. Both the Summer and Winter Olympics routinely entail major construction projects as a condition of winning the bid. The Federation Internationale de Football Association (FIFA), soccer's world governing body, extracts similar promises of new stadiums from its host countries. Germany spent over 1.4 billion euros building or rehabilitating 12 stadiums for the 2006 FIFA World Cup of which at least 35 percent was provided by local, state, and federal taxpayers²⁶.

It is a common error in cost benefit analysis for the costs of infrastructure improvements to be counted as a benefit and not a cost. While construction expenditures for sports infrastructure undoubtedly have stimulative effects on the economy, the opportunity cost of

capital must also be considered. Public expenditures on sports infrastructure and event operations necessarily entail reductions in other government services, an expansion of government borrowing, or an increase in taxation, all of which produce a drag on the local economy²⁷. At best public expenditures on sports-related construction or operation have zero net impact on the economy as the employment benefits of the project are matched by employment losses associated with higher taxes or spending cuts elsewhere in the system.

At worst, the spending on sports projects represents true costs. If specialized materials, labor, or technology must be obtained from outside the local economy, these expenditures result in an outflow of money away from the city. Furthermore, due to the distortions caused by the tax system, all funds raised by a local government to pay for stadium construction result in some level of dead-weight loss that can easily exceed \$0.25 for every dollar spent. Finally, even if all monies spent on construction stay in the local economy, there is nothing to suggest that stadium building is the best use of government funds and that the return on sports infrastructure exceeds the return on the next best alternative. In many cases, sports venues are often highly specialized facilities that have only limited use following an event. For example, what does one do with a world-class, 10,000 seat swimming facility once the Olympics are over? Indeed, unless a compelling case can be made that a local community is in dire need of fiscal stimulus and that no other projects exist that would provide a comparable return, infrastructure spending must be considered a cost and not a benefit.

Besides the infrastructure costs associated with hosting these games, sporting events and the crowds associated with them require government expenditures on public safety, sanitation and public transportation, and the larger the event the larger the potential costs. The variable costs borne by the host city are at least \$1.5 million for the Super Bowl²⁸, and Greece spent over

\$1.5 billion on security alone for the 2004 Summer Olympics. In addition, non-economic costs such as “traffic congestion, vandalism, environmental degradation, disruption of residents' lifestyle, and so on are rarely reported.”²⁹ Following championship matches, for example, informal celebrations all too frequently degenerate into riots resulting in violence and the destruction of property, which negatively affect productive activity in the short-run. The failure to account for the public costs associated with athletic contests serves to give an upwards bias to the reported net impact of these events.

While *ex ante* estimates often do a credible job in determining the economic activity that occurs as a result of a mega-event and may also address the issue of the substitution effect by excluding spending by local residents, they generally do a poor job of accounting for crowding-out and almost never acknowledge the problems associated with the application of incorrect multipliers. Of course, one solution to the criticisms of *ex ante* economic analysis is to simply perform better cost-benefit analysis that fully accounts for the costs involved and more thoroughly addresses the issues of appropriate multipliers, opportunity costs, and the substitution effects of mega-events.

Larry Dwyer, Peter Forsyth, and Ray Spurr estimate the economic impact of the Qantas Australian Grand Prix automobile race using both standard input-output analysis and a more sophisticated computable general equilibrium (CGE) model that better accounts for the theoretical deficiencies discussed previously. By the standard input-output analysis, the race increased real output by \$112 million the state of New South Wales and \$120.1 million the country as a whole while the CGE model presented much more modest figures of \$56.7 million and \$24.5 million for the state and country, respectively³⁰.

***Ex Post* studies of mega-events**

While Dwyer, Forsyth, and Spurr advocate the use of CGE over simple input-output based models in generating economic impact estimates, they concede that any type of *ex ante* approach to requires making many heroic assumptions about the state of the economy and the response of host cities to mega-events. For this reason, other scholars have performed *ex post* studies of regions that have hosted large sporting event to examine whether the advertised *ex ante* estimates conform to *ex post* observations of the economic impact mega-events exert on their host cities. These *ex post* analyses generally confirm the criticisms of economic impact studies discussed previously finding that *ex ante* studies routinely exaggerate the benefit of mega-events often by up to a factor of 10.

Ex post analyses of mega-events are performed by examining the economic performance of a host region during a mega-event and comparing this performance to other similar regions at the same time that did not host the event. Alternatively, one can compare a city's economy during a mega-event to the same city before and/or after the event. Scholars most commonly use personal income, per capita personal income, employment, and taxable sales or sales tax collections in their studies, although economic variables such as hotel occupancy rates and prices, and airport arrivals and departures have also been used to attempt to measure the economic impact of mega-events on host economies.

The primary difficulty facing practitioners of *ex post* economic impact analysis is that even significant economic events may be hard to isolate within the large, diverse metropolitan economies in which they take place. For example, even if the Super Bowl does result in a \$400 million boost to the host city, this is less than 0.1% of the annual personal income of a metropolitan area like Los Angeles, a frequent Super Bowl host. Any income gains as a result of

the game may be obscured by normal fluctuations in the region's economy. If the event can be isolated within space and time, however, any potential impact is more likely to be identified. For example, while the presence of the World Series might have a large effect on neighborhood businesses, the overall effect on a state or country's economy will be minuscule and hard to identify. Furthermore, these same economic effects may be large for the time period immediately surrounding the event, but over the course of an entire year, the impact during this, perhaps, week-long period is not likely to show up as an important change. Therefore, the use of quarterly or monthly data is superior to annual data, and city, county, or metropolitan area data is preferred to state or national figures. In addition, if one can examine multiple events, or the same event over a number of years, patterns that are not be evident when observing an individual event may be revealed.

While the earliest studies of the economic impact of professional sports concentrated on the presence of professional franchises and the construction of new playing facilities (e.g. Robert Baade and Richard Dye³¹ and Coates and Humphreys³²), more recently work has begun to focus on the economic impact of mega-events on local economies. See Table 2 for a summary of multiple *ex post* mega-event impact studies.

Robert Baade and Victor Matheson examine annual city-wide employment data during MLB's All-Star Game and find that employment growth in host cities between 1973 and 1997 was 0.38% lower than expected compared to other cities³³. A similar examination of the 1996 Summer Olympics in Atlanta by the same authors found employment growth of between 3,500 and 42,000 jobs, a fraction of 77,000 new jobs claimed in *ex ante* studies³⁴. An examination of metropolitan area-wide personal income during thirty NCAA Men's Final Four Basketball tournaments found that, on average, personal incomes were lower in host cities during

tournament years³⁵. A similar study of the 1994 World Cup in the U.S. found that personal income in host cities was \$4 billion lower than predicted, a direct contradiction to *ex ante* estimates of a \$4 billion windfall³⁶. Coates and Humphreys examine the effect of post-season play in all four major U.S. sports on per capita personal incomes and find in all cases that hosting playoff games has a statistically insignificant impact on per capita incomes³⁷. Finally, Baade and Matheson examined 32 Super Bowls held between 1970 and 2001 and found that the average increase in personal incomes in host cities was \$91.9 million, roughly one-quarter of the figures routinely touted by the NFL, and that an increase in personal incomes due to the game of greater than \$300 million could be ruled out at the 5% significance level³⁸.

Taxable sales or sales tax collections have also frequently been used to assess the economic impact of sporting events. These measures are ideally suited to measuring the economic impact of large sporting events for several reasons. First, there is often a direct connection between sales tax collections and sporting events or facilities. Boosters often include large sums for visitor spending in their *ex ante* estimates of the economic impact of a event, and numerous publicly funded sports facilities have also been financed directly from sales taxes collections or through specific increases in the sales tax rate making an examination of taxable sales especially relevant³⁹. In addition, taxable sales are a good indicator of economic well-being as they represent approximately 40 percent of overall economic activity. Finally, the previously mentioned studies of mega-events have used personal income^{40, 41}, per capita income⁴², or employment data^{43, 44} to estimate the *ex post* economic impact of sports. These data are generally available only annually and at the county or metropolitan area level, and therefore these studies suffer from the limitations mentioned previously. Taxable sales data, however, are often published either monthly or quarterly and can cover areas down to the city level or smaller.

Therefore, these data can be analyzed to identify activities that are much smaller in scale and duration.

Phil Porter provides a detailed analysis of taxable sales with respect to mega-events, using regression analysis to determine that the economic impact of the Super Bowl was statistically insignificant, that is not measurably different from zero. After reviewing short-term data on sales receipts for several Super Bowls, Porter concluded:

Investigator bias, data measurement error, changing production relationships, diminishing returns to both scale and variable inputs, and capacity constraints anywhere along the chain of sales relations lead to lower multipliers. Crowding out and price increases by input suppliers in response to higher levels of demand and the tendency of suppliers to lower prices to stimulate sales when demand is weak lead to overestimates of net new sales due to the event. These characteristics alone would suggest that the estimated impact of the mega-sporting event will be lower than the impact analysis predicts. When there are perfect complements to the event, like hotel rooms for visitors, with capacity constraints [benefits are] reduced to zero.

Other studies relying on taxable sales have also been made. Baade and Matheson challenged an NFL claim of a \$670 million boost in South Florida's taxable sales due to the 1999 Super Bowl and arrive at a figure of a mere \$37 million increase⁴⁵. Baade and Matheson also examined taxable sales in California to determine the effect of MLB's All-Star Game on local economies. They found that the three California cities that hosted All-Star Games between 1985

and 1997 suffered an average drop in taxable sales of roughly \$30 million in the quarter in which the game took place⁴⁶.

Other more recent studies have examined multiple events in both Florida⁴⁷ and Texas^{48, 49} using taxable sales and gross sales/sales taxes collections, respectively. As in previous papers, the authors find no consistently positive statistically significant relationship between mega-events and either retail sales or sales tax collections.

Only one *ex post* mega-event analysis has identified significant economic benefits from a mega-event. Julie Hotchkiss, Robert Moore, and Stephanie Zobay, in a retrospective study of the 1996 Atlanta Olympics, estimated that the Games resulted in an increase in employment of 293,000 jobs in areas that hosted events, a figure that exceeded even the optimistic projections of the event organizers⁵⁰. A more careful look at their results, however, points at the difficulty of identifying mega-events in the grand scheme of overall metropolitan area economic development. The authors found that employment growth in Atlanta and the surrounding area was a mere 0.2 percent higher than would have otherwise been expected over the time period from 1991 through 1996. If this higher growth over the entire period is attributed solely to the presence of the Olympics, then indeed job growth was 293,000 jobs higher than would have otherwise been observed. Even slight changes in large economies over long time periods, however, can result in eye-popping numbers. While it is certainly possible that the Summer Olympics were responsible for these employment gains, the study also serves as a cautionary tale against extrapolating small changes over large areas and time periods.

Policy Recommendations and Conclusions

While sports boosters routinely claim large benefits from hosting mega-events, the overwhelming majority of independent academic studies of these events have shown that their economic impact appears to be limited. While the gross impact of these huge games and tournaments is undoubted large, attracting tens or hundreds of thousands of live spectators as well as television audiences that can reach the billions, the net impact of mega-events on real economic variables such as taxable sales, employment, personal income, and per capita personal income in host cities is negligible. There are ways, however, that host cities can work to maximize the net benefits that accrue to the area.

First, by limiting the amount of new infrastructure built to accommodate an event, costs can be substantially reduced significantly increasing the probability that an event will result in positive net benefits. The local government of Montreal built multiple new facilities for the 1976 Summer Olympics, including the grandiose Olympic Stadium, and wound up with debts totaling \$1.2 billion. These debts were not paid off until 30 years after the Games. In contrast, the 1984 Los Angeles Olympic Committee exclusively used existing sports venues around the city, spent less than \$1 billion in total to put on the Games, and ended up with a profit of over \$200 million⁵¹.

Second, while academic economists are nearly universal in their criticism that specialized sports infrastructure does little to promote economic growth, mega-events often spur spending on non-sports related infrastructure that may provide for future economic development. Only a fraction of Beijing's \$22 billion in infrastructure improvements planned for the 2008 Summer Olympics will be spent on sports facilities, for example. A mega-event may prompt otherwise reluctant public officials into making needed improvements in general infrastructure.

On the other side of the coin, there is, of course, no reason to believe that general infrastructure improvements necessarily increase economic growth. Even infrastructure that is not directly sports related may go unused after the completion of the event, or may be a second-best use of scarce investment capital⁵². Furthermore, the separation between what is “sports” infrastructure and what is “general” infrastructure is not always clear. The new Wembley stadium in London was originally slated to cost around \$500 million. In addition, over \$150 million in “general” infrastructure improvements were proposed at the same time including new roads and a completely renovated Underground station. Without the presence of Wembley Stadium, however, no new roads or subway station would be required. Therefore, from an objective standpoint, the entire \$650 million price tag should be considered specialized sports infrastructure, and an analysis of the expenditure would likely lead to a negative appraisal of its economic benefit⁵³.

A third item that local officials should keep in mind is that there are several reasons to believe that hosting a series of smaller events may result in higher net benefits than a strategy that encourages large, but infrequent mega-events. First, crowding out is much less likely to occur during a small event than during a mega-event. It is difficult to believe that large numbers of travelers will fundamentally change their travel plans due to a relatively minor event such as a local marathon or amateur track and field event, and therefore these events may get all of the benefits of increased visitor spending without the costs of displaced visitors. Second, since smaller events are less likely to cause deviations from normal business patterns, the multipliers applied for these events are also much more likely to represent an accurate estimate of indirect spending. Third, while security measures cannot be ignored for these smaller events, the security costs and the local inconveniences caused by toughened security measures will be orders of

magnitude lower than for mega-events. Fourth, lower profile events are less likely to place additional demands on local organizers such as state-of-the-art facilities and first-class accommodations for athletes and organizers raising the costs of the hosting. Finally, mega-events simply require larger (and consequently more expensive) sporting facilities that are likely to be little used in future. Quite simply put, mega-events cause overinvestment in rarely used sports facilities⁵⁴.

The most important piece of advice that a local government can take regarding mega-events, however, is simply to view with caution any economic impact estimates provided by entities with a incentive to provide inflated benefit figures. While most sports boosters claim that mega-events provide host cities with large economic returns, these same boosters present these figures as justification for receiving substantial public subsidies for hosting the games. The vast majority of independent academic studies of mega-events show the benefits to be a fraction of those claimed by event organizers.

Endnotes

1. National Football League, "Super Bowl XXXIII Generates \$396 Million for South Florida," *NFL Report*, 58, no. 7 (1999).
2. Bud Selig, J. Harrington, and Healey, "New Ballpark Press Briefing: July 12, 1999," www.asapsports.com/baseball/1999allstar/071299BS.html, (accessed August 29, 2000).
3. Dan Ackman, "In Money Terms, The Subway Series Strikes Out," *Forbes Magazine*, October 21, 2000.
4. T. Anderson, "St. Louis Ready to Raise NCAA Flag if Atlanta Can't," *St. Louis Business Journal*, January 19, 2001.
5. M. Mensheha, "Home-court Edge: Final Four Promises to be Economic Slam Dunk," *San Antonio Business Journal*, March 27, 1998.
6. Robert Baade and Victor Matheson, "Home Run or Wild Pitch? Assessing the Economic Impact of Major League Baseball's All-Star Game," *Journal of Sports Economics*, 2, no. 4 (2001): 307-327.
7. Jeffrey Humphreys, "The Economic Impact of Hosting Super Bowl XXVIII on Georgia," *Georgia Business and Economic Conditions*, 54, no. 3 (May-June, 1994).
8. United States Tennis Association, "2000 U.S. Open Nets Record \$420 Million in Economic Benefits for New York," www.usta.com/pagesup/news12494.html, (accessed January 9, 2002).
9. South Africa Football Association, "World Cup Bid Details," www.safa.org.za/html/bid_det.htm (accessed January 9, 2002).
10. Jonathan Finer, "The grand illusion," *Far Eastern Economic Review*, 7, (March 2002): 32–36.
11. J. Houck, "High-stake Courtship," *FoxSportsBiz.com*, January 21, 2000. www.foxsports.com/business/trends/z000120allstar1.sml, (accessed September 14, 2000).
12. Knight Ridder News Service, "Final Four's Financial Impact Hard to Gauge," *Enquirer Sports Coverage*, enquirer.com/editions/1999/03/25/spt_final_fours.html, March 25, 1999, (accessed August 30, 2001).
13. Patrick Anderson, *Business Economics and Finance with MATLAB, GIS and Simulation Models*, (New York: Chapman & Hall/CRC, 2004), 131.
14. Robert Baade and Victor Matheson, "Mega-Sporting Events in Developing Countries: Playing the Way to Prosperity?" *South African Journal of Economics*, 72, no. 5 (December 2004): 1084-1095.

-
15. Robert Baade, "Professional Sports as a Catalyst for Metropolitan Economic Development," *Journal of Urban Affairs*, 18, no. 1 (1996): 1-17.
 16. Dennis Coates and Brad Humphreys, "The Growth Effects of Sports Franchises, Stadia, and Arenas," *Journal of Policy Analysis and Management*, 14, no. 4 (1999): 601-624.
 17. Phil Porter, "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, 1999).
 18. Dennis Coates and Brad Humphreys, "The Economic Impact of Post-Season Play in Professional Sports," *Journal of Sports Economics*, 3, no. 3 (2002): 291-299.
 19. Victor Matheson, "Contrary Evidence on the Economic Impact of the Super Bowl on the Victorious City," *Journal of Sports Economics*, 6, no. 4 (2005): 420-428.
 20. Gerald Carlino and N. Edward Coulson, "Compensating differentials and the social benefits of the NFL," *Journal of Urban Economics*, 56, no. 1 (2004): 25-50.
 21. Dennis Coates, Brad Humphreys and Andrew Zimbalist, "Compensating differentials and the social benefits of the NFL: A comment," *Journal of Urban Economics*, 60, no. 1 (2006): 124-131.
 22. John Seigfried and Andrew Zimbalist, "The Economics of Sports Facilities and Their Communities," *Journal of Economic Perspectives*, 14, no. 3 (2000): 95-114.
 23. M. Golovkina, "S. Korean tourism sector in blues despite World Cup," *Forbes.com*, <http://www.forbes.com/newswire/2002/06/19/rtr636036.html>, posted 6/19/2002 (accessed 6/20/2002).
 24. Victor Matheson, "Economic Multipliers and Mega-Event Analysis," *College of the Holy Cross Working Paper Series*, no. 04-02 (2004).
 25. Matheson, "Economic Multipliers and Mega-Event Analysis."
 26. Robert Baade, Victor Matheson, and Mimi Nikolova, "A Tale of Two Stadiums: Comparing the Economic Impact of Chicago's Wrigley Field and U.S. Cellular Field," *Geographische Rundschau International Edition*, 3, no. 2 (April 2007).
 27. Seigfried and Zimbalist.
 28. Dennis Coates, "Tax Benefits of Hosting the Super Bowl and MLB All-Star Game," *International Journal of Sport Finance*, forthcoming.
 29. Soonhwan Lee, "A Review of Economic Impact Study on Sport Events," *The Sport Journal*, 4, no. 2 (2001).

-
30. Larry Dwyer, Peter Forsyth, Ray Spurr, "Estimating the Impacts of Special Events on an Economy," *Journal of Travel Research*, 43, (May 2005): 1-9.
 31. Robert Baade and Richard Dye, "The Impact of Stadiums and Professional Sports on Metropolitan Area Development," *Growth and Change*, 21, no. 2 (1990): 1-14.
 32. Coates and Humphreys, "The Growth Effects of Sports Franchises, Stadia, and Arenas."
 33. Robert Baade and Victor Matheson, "Home Run or Wild Pitch?"
 34. Robert Baade and Victor Matheson, "Bidding for the Olympics: Fool's Gold?" in *Transatlantic Sport: The Comparative Economics of North American and European Sports*, eds Carlos Pestanos Barros, Muradali Ibrahim, and Stefan Szymanski, (London: Edward Elgar Publishing, 2002), 127-151.
 35. Robert Baade and Victor Matheson, "An Economic Slam Dunk or March Madness? Assessing the Economic Impact of the NCAA Basketball Tournament," in *Economics of College Sports*, eds John Fizel and Rodney Fort, (Westport, CT: Praeger Publishers, 2004), 111-133.
 36. Robert Baade and Victor Matheson, "The Quest for the Cup: Assessing the Economic Impact of the World Cup," *Regional Studies*, 38, no. 4 (2004): 341-352.
 37. Coates and Humphreys, "The Economic Impact of Post-Season Play in Professional Sports".
 38. Robert Baade and Victor Matheson, "Padding Required: Assessing the Economic Impact of the Super Bowl," *European Sports Management Quarterly*, 6, no. 4 (December 2006).
 39. Robert Baade and Victor Matheson, "Have Public Finance Principles Been Shut Out in Financing New Stadiums for the NFL?" *Public Finance and Management*, 6, no. 3 (Summer 2006): 284-320.
 40. Baade and Matheson, "The Quest for the Cup".
 41. Baade and Matheson, "An Economic Slam Dunk or March Madness?"
 42. Coates and Humphreys, "The Economic Impact of Post-Season Play in Professional Sports".
 43. Baade and Matheson, "Home Run or Wild Pitch?"
 44. Baade and Matheson, "Bidding for the Olympics: Fool's Gold?"
 45. Robert Baade and Victor Matheson, "An Assessment of the Economic Impact of the American Football Championship, the Super Bowl, on Host Communities," *Reflets et Perspectives*, 34, no. 2-3 (2000): 35-46.
 46. Baade and Matheson, "Home Run or Wild Pitch?"

-
47. Robert Baade, Robert Baumann, and Victor Matheson, "Selling the Big Game: Measuring the Economic Impact of Mega-Events Through Taxable Sales," *College of the Holy Cross Working Paper Series*, no. 05-10 (2005).
48. Dennis Coates, "Tax Benefits of Hosting the Super Bowl and MLB All-Star Game."
49. Dennis Coates and Craig Depken, II, "Mega-Events: Is the Texas-Baylor game to Waco what the Super Bowl is to Houston?" *International Association of Sports Economists*, Working Paper no. 06-06 (2006).
50. Julie Hotchkiss, Robert E. Moore, and Stephanie M. Zobay, "Impact of the 1996 Summer Olympic Games on Employment and Wages in Georgia," *Southern Economic Journal*, 69, no. 3 (2003): 691-704.
51. Holger Preuss, *Economics of the Olympic Games*, Edward Elgar Publishing 2004.
52. Baade and Matheson, "Mega-Sporting Events in Developing Countries".
53. Baade and Matheson, "Mega-Sporting Events in Developing Countries".
54. Victor Matheson, "Is Smaller Better? A Comment on 'Comparative Economic Impact Analyses' by Michael Mondello and Patrick Rishe," *Economic Development Quarterly*, 20, no. 2 (May 2006): 192-195.

Table 1: Examples of Mega-Event *ex ante* Economic Impact Studies

Event	Year	Sport	Impact	Author
Super Bowl (Atlanta)	1994	Football	\$166 million 2,736 jobs	Jeffery Humphreys, Georgia State University ¹
Super Bowl (Miami)	1999	Football	\$393 million	Kathleen Davis, Sports Management Research Institute ²
Super Bowl (San Diego)	2003	Football	\$367 million	Marketing Information Masters, Inc. ³
MLB All-Star Game	1999	Baseball	\$75 million	Bud Selig, MLB ⁴
MLB World Series	2000	Baseball	\$250 million	Comptroller of New York City ⁵
NCAA Men's Final Four (St. Louis)	2001	Basketball	\$110 million	St. Louis Convention and Visitor's Bureau ⁶
U.S. Open	2001	Tennis	\$420 million	Sports Management Research Institute ⁷
World Cup (Japan)	2002	Soccer	\$24.8 billion	Dentsu Institute for Human Studies ⁸
World Cup (South Korea)	2002	Soccer	\$8.9 billion	Dentsu Institute for Human Studies ⁹
World Cup	2006/ 2010	Soccer	\$6 billion 129,000 jobs	South Africa Football Association ¹⁰
Summer Olympics (Atlanta)	1996	Multiple	\$5.1 billion 77,000 jobs	Jeffery Humphreys and M. K. Plummer ¹¹
Winter Olympics (Vancouver, British Columbia)	2010	Multiple	\$10.7 C billion 244,000 jobs	B.C. Ministry of Competition, Science and Enterprise and InterVISTAS Consulting ¹²

1. Jeffrey Humphreys, "The Economic Impact of Hosting Super Bowl XXVIII on Georgia," *Georgia Business and Economic Conditions*, 54, no. 3 (May-June, 1994).

2. National Football League, "Super Bowl XXXIII Generates \$396 Million for South Florida," *NFL Report*, 58, no. 7 (1999).

-
3. National Football League, "Super Bowl XXXVII generates \$367 million economic impact on San Diego County," <http://www.nfl.com/news/story/6371262>, May 14, 2003, (accessed October 15, 2006).
 4. Bud Selig, J. Harrington, and J. Healey, "New Ballpark Press Briefing: July 12, 1999," www.asapsports.com/baseball/1999allstar/071299BS.html, (accessed August 29, 2000).
 5. Dan Ackman, "In Money Terms, The Subway Series Strikes Out," *Forbes Magazine*, October 21, 2000.
 6. T. Anderson, "St. Louis Ready to Raise NCAA Flag if Atlanta Can't," *St. Louis Business Journal*, January 19, 2001.
 7. United States Tennis Association, "2000 U.S. Open Nets Record \$420 Million in Economic Benefits for New York," www.usta.com/pagesup/news12494.html, (accessed January 9, 2002).
 8. Jonathan Finer, "The grand illusion," *Far Eastern Economic Review*, 7, (March 2002): 32-36.
 9. Finer.
 10. South Africa Football Association, "World Cup Bid Details," www.safa.org.za/html/bid_det.htm (accessed January 9, 2002).
 11. Jeffrey Humphreys and M. K. Plummer, "The Economic Impact on the State of Georgia of Hosting the 1996 Summer Olympic Games," (Athens, Georgia: Selig Center for Economic Growth, The University of Georgia, 1995).
 12. InterVISTAS Consulting, "The Economic Impact of the 2010 Winter Olympics and Paralympic Games: An Update," (British Columbia Ministry of Competition, Science and Enterprise, November 20, 2002).

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

Event	Years	Variable	Impact	Author
MLB All-Star Game	1973-1997	Employment	down 0.38%	Robert Baade and Victor Matheson ¹
Super Bowl	1973-1999	Employment	537 jobs	Robert Baade and Victor Matheson ²
Summer Olympics (Atlanta)	1996	Employment	293,000 jobs	Julie Hotchkiss, Robert Moore and Stephanie Zobay ³
Summer Olympics (Atlanta)	1996	Employment	3,500 - 42,000 jobs	Robert Baade and Victor Matheson ⁴
Super Bowl	1970-2001	Personal Income	\$91.9 million	Robert Baade and Victor Matheson ⁵
MLB playoffs and World Series	1972-2000	Personal Income	\$6.8 million/game	Robert Baade and Victor Matheson ⁶
NCAA Men's BB Final Four	1970-1999	Personal Income	down \$44.2-\$6.4 million	Robert Baade and Victor Matheson ⁷
World Cup	1994	Personal Income	down \$4 billion	Robert Baade and Victor Matheson ⁸
Multiple Events	1969-1997	Personal Income/capita	Not statistically significant	Dennis Coates and Brad Humphreys ⁹
Daytona 500	1997-1999	Taxable Sales	\$32 - \$49 million	Robert Baade and Victor Matheson ¹⁰
Super Bowl	1985-1995	Taxable Sales	no effect	Phil Porter ¹¹
Multiple Events (Florida)	1980-2005	Taxable Sales	down \$34.4 million (avg)	Robert Baade, Rob Bauamann, and Victor Matheson ¹²
Multiple Events (Texas)	1991-2005	Gross Sales	Varied - pos. and neg.	Dennis Coates ¹³
Multiple Events (Texas)	1990-2006	Sales Tax Revenue	Varied - pos. and neg.	Dennis Coates and Craig Depken, II ¹⁴
NHL regular-season games	1990-1999	Hotel Occupancy	Slight increase	Marc Lavoie and Gabriel Rodriguez ¹⁵

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1. Robert Baade and Victor Matheson, "Home Run or Wild Pitch? Assessing the Economic Impact of Major League Baseball's All-Star Game," *Journal of Sports Economics*, 2, no. 4 (2001): 307-327.
 2. Robert Baade and Victor Matheson, "An Assessment of the Economic Impact of the American Football Championship, the Super Bowl, on Host Communities," *Reflets et Perspectives*, 34, no. 2-3 (2000): 35-46.
 3. Julie Hotchkiss, Robert E. Moore, and Stephanie M. Zobay, "Impact of the 1996 Summer Olympic Games on Employment and Wages in Georgia," *Southern Economic Journal*, 69, no. 3 (2003): 691-704.
 4. Robert Baade and Victor Matheson, "Bidding for the Olympics: Fool's Gold?" in *Transatlantic Sport: The Comparative Economics of North American and European Sports*, eds Carlos Pestanos Barros, Muradali Ibrahim, and Stefan Szymanski, (London: Edward Elgar Publishing, 2002), 127-151.
 5. Robert Baade and Victor Matheson, "Padding Required: Assessing the Economic Impact of the Super Bowl," *European Sports Management Quarterly*, 6, no. 4 (December 2006).
 6. Robert Baade and Victor Matheson, "A Fall Classic? The Economic Impact of the World Series," *International Journal of Sport Management and Marketing*, forthcoming.
 7. Robert Baade and Victor Matheson, "An Economic Slam Dunk or March Madness? Assessing the Economic Impact of the NCAA Basketball Tournament," in *Economics of College Sports*, eds John Fizel and Rodney Fort, (Westport, CT: Praeger Publishers, 2004), 111-133.
 8. Robert Baade and Victor Matheson, "The Quest for the Cup: Assessing the Economic Impact of the World Cup," *Regional Studies*, 38, no. 4 (2004): 341-352.
 9. Dennis Coates and Brad Humphreys, "The Economic Impact of Post-Season Play in Professional Sports," *Journal of Sports Economics*, 3, no. 3 (2002): 291-299.
 10. Robert Baade and Victor Matheson, "High Octane? Grading the Economic Impact of the Daytona 500," *Marquette Sports Law Journal*, 10, no. 2 (Spring 2000): 401-415.
 11. Phil Porter, "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, 1999).
 12. Robert Baade, Robert Baumann, and Victor Matheson, "Selling the Big Game: Measuring the Economic Impact of Mega-Events Through Taxable Sales," *College of the Holy Cross Working Paper Series*, no. 05-10 (2005).

13. Dennis Coates, "Tax Benefits of Hosting the Super Bowl and MLB All-Star Game," *International Journal of Sport Finance*, forthcoming.

14. Dennis Coates and Craig Depken, II, "Mega-Events: Is the Texas-Baylor game to Waco what the Super Bowl is to Houston?," *International Association of Sports Economists*, Working Paper no. 06-06 (2006).

15. Marc Lavoie and Gabriel Rodríguez, "The Economic Impact of Professional Teams on Monthly Hotel Occupancy Rates of Canadian Cities: A Box-Jenkins Approach," *Journal of Sports Economics*, 6, no. 3 (2005): 314-324.