

A COST BENEFIT ANALYSIS OF HOSTING THE OLYMPICS:
A CASE STUDY OF THE 2000 SYDNEY OLYMPICS

by

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ABSTRACT

This paper first critiques the current problems surrounding ex-ante studies regarding the benefits a country hopes to achieve while hosting the Olympics. Specifically, countries use unrealistic multiplier, neglect to consider the crowding out effect and supply side leakages, as well as use Gross versus Net figures.

After that, this paper examines the Sydney 2000 Olympics and concludes there was a net positive economic benefit of \$1.7 billion, defined as the gross benefit to GSP over the base case less costs of hosting. However, studies need to be performed on a case by case basis to construct an accurate picture of whether or not hosting the Olympics overall creates economic benefit or loss.

INTRODUCTION

The Olympic Games were originally staged on the fields of Olympia in 776BC as a way to honor the gods and as a way the men of Greece could compete vigorously against one another to bring a good name and pride to his family. Throughout the twelve centuries the Olympics were performed, these games served as a way the men of Greece had a way to immortalize themselves as well as showcase the power of the empire. People came from miles around to watch where brilliant stadiums were almost as magnificent as the Greek empire itself. However, these ancient games came to a halt in 393 AD when the emperor declared all such “pagan cults” be banned. (History.com Staff, 2010)

The Olympics never occurred again until a Frenchman named Baron Pierre de Coubertin had the vision of reuniting the planet through international sport and at the same time, foster collective goodwill while contributing to world peace (Malfas 2004). This ideology and philosophy, which Coubertin called Olympism, was the reason the games were revived. It was a way to reenergize the youth of nations and bring together all nations and cultures under one idea: sport. According to the Olympic charter, Olympism is a “philosophy of life, exalting and combining in a balanced whole the qualities of body, will and mind, which, by blending sport with culture and education, seeks to create a way of life based on the joy found in effort, the educational value of good example and respect for universal fundamental ethical principles” (International Olympic Committee, 2014). Consequently, the official goal the Olympics is to ‘place everywhere sport at the service of the harmonious development of man, with a view to encourage the establishment of a peaceful society concerned with the preservation of

human dignity' (International Olympic Committee, 2014). During the history of the modern Olympics, nations compete almost as vigorously to host the Olympics as the athletes compete in the games themselves. The nations want to host the Olympics for a plethora of reasons ranging from personal selfishness and notoriety to the promise of economic wellbeing. The first city to host a profitable game was Los Angeles in 1984, where they posted a net \$300 million unaccounted for excess in overall economic wellbeing in the year of the Olympics. (Baade, 2000) After this profit was recorded, cities, specifically the politicians behind the bidding, have a curtain to hide behind while bidding in the form of promised economic gain for the city. It is important to understand and evaluate if hosting the Olympic Games creates Economic Benefit for the host city and region. The studies performed by the cities have much debate due to the reliability and motives behind the studies. These studies are performed ex ante, which means they are completed prior to the event and are used to model the expected economic benefit of hosting - there are very few ex-post studies performed.

Ex-ante studies have a significant amount of bias as they are manipulated toward the desired result, which is usually hosting the Olympics. This begs the idea that in many situations, the city that wins the bid for the Olympics does so for other reasons aside from bringing economic success to the city, region and country. Some reasons may be bribery of public officials, a political scheme to bring notoriety to his or her name, or a city wanting to insert themselves into the global community, such as Beijing in 2008. These politicians or individuals that stand accused of bribery or use as a political scheme can normally hide behind these inaccurate studies point Los Angeles and a few other cities who have achieved economic benefits as a model for potential

success.

So the Question remains, why do cities host the Olympics? Some counties may actually believe economic success waits the city who hosts the Olympics. They imagine millions of wealthy foreigners descending on the city ready to spend hundreds of dollars on lodging, food, and entertainment. However, what studies are they relying upon? Are they manipulated studies performed by bribed politicians? Are the cities performing ex post studies on other cities who have hosted in the past to see the economic gains and losses of the cities? Individuals in the cities must make sure the idea of Olympic hosting is not simply a story of high paid officials hosting an overly expensive extravaganza paid for by the taxpayers. Many different studies cast differentiating results. However, economic theory casts doubts on the idea of economic windfall from hosting these “mega-events”.

On the other hand, some cities have no hopes of economic success and simply want to host for the recognition the games bring a city. There are few better ways that state economic success and influence than hosting the Olympics. These countries, such as China and Russia, cannot be studied for economic impact due to the nature of those countries bidding process.

From the beginning, there was no economic rationale behind the price paid for hosting. These countries simply wanted to showcase their entrance into the global community and assert the power on the global stage. If need be, a politician can spin that idea into bringing millions, if not billions of profit into the city by non-taxing paying, out of state individuals. Does this represent a fair assumption of the events? Is it possible part of this idealism of the Olympics comes from the mirage the committee puts on for

every state that competes for a bid? Do the games actually contribute bottom line to taxpayers and governments beyond the opportunity cost of capital?

These questions cannot be answered in an unbiased fashion by organizations hired by the city to conduct the investigation.

Theoretically, a city will bid for the Olympics until the economic benefit to the city reaches zero, but there are many reasons that potentially drain the profits of cities. First, the International Olympics Committee is a monopolistic entity with all power to give rights to the city. This means, without question, massive bribes are given out to the committee and individual members and pose a major cost to cities trying to host. The Olympic committee would like to participate in the economic gains of the Olympics, lowering the benefit to the city and increasing the cost. Furthermore, the notorious IOC Rule 4 which is claimed to be the biggest financial risk to host cities, states that the host city must assume all financial liability for the games. As mentioned, Los Angeles was the first city on record a profit. This specific case has differentiating factors that could explain why the city was able to record a profit of \$300 million in the form of 5,000 new unexplained jobs in the year of the Olympics (Blake, 2005) Los Angeles was the only city that year bidding for the Olympics and refused to sign a contract with the IOC on IOC terms (Shaikin, 1988). LA Mayor Tom Bradley would not move forward with hosting the Olympics until the IOC Rule 4 was removed from the contract. However, despite the current IOC monopoly, cities continue to bid for the Olympics.

The idea of this paper is to assess the economic impact the Olympics, and the use of public funds to host them. There is literature on both sides of the argument that

suggests both positive and negative economic windfall that comes from hosting such an event. These studies performed are littered with bribery from both the Olympics committee and external parties involved in the hosting of the games. This paper will attempt to take all the noise out of the studies and determine the actual impacts on hosting the Olympics, from job increases, GDP growth rates before and after the Olympics, and other facts that are key to economic success.

The following section of the paper will review the literature current published on the subject of the impacts of “Mega-Events”. This term must be used for the sake of literature review, as a vast majority of the current literature out there includes the FIFA world cup. The review includes the shortcomings of models and theories used by those who conclude there are economic benefits to hosting. Following that, a new model will be developed in an after-the-event study to estimate the economic impact and actual estimates will be used. The final portion of the paper will be conclusions and recommendations for cities considering hosting the games.

LITERATURE REVIEW

The vast majority of current economic studies and literature produced support having positive outcomes for the Olympic hosts. The motive behind conducting these studies, however, is many times not pure. Ex ante studies, which are the majority of studies that exist, exist to assist decision and policy makers of the efficiency and benefits of these projects. After these studies are performed, decision makers can pitch to the public and other voters either to host or not to host based seemingly on economic grounds. For example, in 2012, Dallas was in the running to host the Olympics and had

an economic impact study performed. The Chairman of Dallas 2012 released the following statement:

How much is \$4 billion? It's very close to the 1998 net income from Metroplex giants

J.C. Penney Co. Inc., EDS Corp., Kemberly-Clark Corp., Texas Instruments Inc., Halliburton Co. and Texas Utilities Co. – Combined.

The \$4 billion will benefit most every business in the Metroplex – from hotels to restaurants, from real estate to transportation, from communications to health care and infrastructure. (Baade, 2000).

However, not all these studies are taken as correct by academics and economists alike. The impact has potential to be large, but may also be large in the negative sense. As Malfas (2004) states: The impacts of mega-sporting events on the host city or region can be immense and manifold, and a great part of the relevant literature supports the idea that such events can primarily product positive outcomes. Whether mega-sporting events do indeed product such net effects, however, has been under debate by several authors.

These debates come about because these studies performed are not easy to complete.

These economic impact studies are problematic to carry out, reflect the objectives of those who commission them, are easily misinterpreted, may utilize mischievous practices, and may result in overstate the economic impact brought to a certain region (Kirkup, 2006). These studies, as in any model, are fully dependent on the underlying assumptions and factors used.

Assumptions can be easily manipulated, factors can be left out and information provided to the analysts may be inaccurate. Even the bodies that perform the studies include qualifiers such as the following:

We have not audited or verified any information provided to us and as such will take no responsibility for the accuracy of the information which was provided by third parties... Some assumptions will inevitably not materialize... actual results may vary from those described in the report. (Pricewaterhouse Coopers, 2002)

These models, which as stated above could potentially be very far from the truth make way for statements such as this:

In economic terms, however, hosting an Olympics remains highly speculative. Whilst each Olympics held in the past three decades has returned a profit... costs are calculated in a budget that separates operational costs (accommodation, catering, publications and media) from infrastructure costs.

These claims are made based on differentiating accounts, mainly of ex ante studies. These gains are mainly considered to come from tourists visiting the cities as well as jobs creating around supporting the events. For example, proponents of the 1994 World Cup stated that hosting the event would bring thousands of visitors and account for a \$4 billion increase to the United States economy. South African models stated a \$6 billion increase to the economy and 129,000 new jobs. However, the largest projected economic impact was performed by the Dentsu Institute for Human Studies which published a study estimating a \$24.8 billion impact from the 2002

world cup for Japan and a \$8.9 billion impact for South Korea (Matheson, 2004).

As far as the Olympics is concerned, just as rosy projections are made from a \$5.1 billion increase in Atlanta to a \$6.3 billion increase to Sydney in 2000 and a \$11 billion increase to New York. To support these claims, ex post studies need to be performed to either support or reject these projections. According to Matheson (2004) “few, if any, ex post studies have been performed on mega-events... at least in part due to the limited frequency of such events.”

In place of extensive ex post studies, one current indicator is to analyze how the stock market reaction to the announcement. Critics argue if the stock market reacts favorably to the announcement, there is a history of economic gains. Interestingly, there was a positive impact on the Athens Stock Exchange in 2004 after the announcement (Veraros, 2004). As the 2004 Olympic Games Announcement states:
sad

Academic literature suggests that sporting mega events have a positive contribution to the host area economy. This implies that the stock exchange should react positively to the announcement of such events... The announcement of the nomination of Athens as the hosting city for the Olympic Games of 2004 exerted a positive effect on the general index of the ASE, and on particular industries related to the development of the necessary infrastructure.

However, using this same theory, others have cited different results. As Berman (2000) found in his study of the Australian stock market:

... no overall impact on the stock market is found. Second, only a limited number of industries' portfolios show a significant positive impact to the Olympic Games announcement. Specifically the industry portfolios are: building materials, developers and contracts, engineering and miscellaneous services. This is consistent with the economic boost for the Olympics being in infrastructure and development and thus in the general building and construction sector. Third the results clearly demonstrate that for the industries where there was a significant positive stock market reaction to the Olympic Games announcement, that significant positive stock market reaction is confined to stocks based in the state which will host the games, New South Wales.

Where do the major differences between the ex-ante studies and ex post studies reality lie? This vast disagreement between the two solicits resolution. Do the outcomes for Los Angeles in 1984 and Atlanta, which was profitable in 1996, signal properly run mega events can match the claims of the overly optimistic suggestions made by event proponents? The understanding of the differences between ex ante studies and reality are critical in order to accurately conduct future studies for potential host cities and properly allocate public funds. To fully understand the differences, the theoretical issues in in ante studies must be identified.

Ex-ante studies, as mentioned, are much more prevalent due to the fact that these studies provide the rationale for funding. Ex post studies are rare, arguably because once a project is complete, the study will have little, if any utility to the city. Whether or not the desired outcome actually happened has little value to evaluate.

Therefore, these ex-ante studies aim to estimate the economic impact to a region.

According to Barclay (2009), there are two main indicators that constitute 'economic impact':

[Ex-ante studies] derive the economic 'impact' in two main ways: from the effect of the construction of infrastructure such as sporting facilities, and from the total commercial activity that takes place during the event, which takes into account an estimate of the number of visitors, the number of days a visitor is expected to spend and how much on average he or she will spend. In the latter case, these figures are combined to estimate a 'direct economic impact'.

Many scholars reject this logic of 'direct economic impact' and deem it fundamentally flawed. Many reasons exist for this idea. First, many studies look at a gross number, not a net number. This ignores the opportunity cost of capital that goes along with any investment. Also, consumers generally have inelastic leisure budgets, which means spending on Olympic tickets means taking spending away from other aspects of the local economy. This is one simple reason why these studies can be grossly overstated (Owen, 2005). As Owen (2005) points states:

The simple elegance of economic impact studies, injections of money circulating over and over in an economy create a multiplier effect, has an alluring "something-for-nothing" quality that is hard to refute. The mistakes made in economic impact studies are so numerous that making a lucid counter-argument can be difficult. Critics have focused primarily on the following areas of misapplication: treating costs as benefits, ignoring opportunity costs, using gross spending instead of net changes, and using multipliers that are too

large.

In many cases the cost of constructing stadiums, which to a large degree is spent on hiring construction workers and purchasing materials from local suppliers, is counted as a benefit to the local economy. This is arguably the most egregious error in economic impact studies. It is backwards looking in that it looks at the production aspect of the project and ignores the effect of the actual consumption of the product.

Baade (2000) explains this idea clearly in the following quote:

The initial construction of a \$10 million sports facility provides an initial impact of \$10 million on the local economy. This is the direct impact. Clearly, the construction of the facility will require concrete, steel, construction workers, and so forth. The money spent on these materials and services comprises the indirect expenditures, or the indirect impacts.

Even if there is a positive net benefit to the city, the investment of public funds should only be allocated if the opportunity cost of capital is the highest for that use of funds. (Miscalculations and misinterpretations in economic impact analysis). The analysis in this study, therefore, will be developed to ensure benefits are not overstated and opportunity cost of capital has not been ignored.

Above and beyond this, there are a number of other factors that literature states could significantly overestimate the impacts. The first is the multiplier which is mentioned above and relates to the direct expenditures spent. Multipliers are thought to exist in an economy as one person's spending becomes another person's income,

who then turns around and spends a portion of that money and the cycle continues. The indirect spending eventually converges on the direct spending because only a portion of the income received is spent again as some of the money leaves the system every change of hands due to individual savings, taxation, or money spent outside the host economy. However, these multipliers are based on normal states of the economy and are taken from the Bureau of Economic Analysis' Regional Industrial Multiplier System (RIMS II). As Matheson (2004) states:

The multipliers in RIMS II (or other multiplier models) are based upon 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 be highly inaccurate. Indeed, there is substantial reason to believe that during mega-events, these multipliers are highly overstated, and therefore, their use overestimates the true impact of these events on the local economy.

This multiplier effect is even further overstated by the use of multipliers on local residents. Many local residents attend the games and are included in the studies. Eliminating these direct expenditures from the models may seem to eliminate a major portion of the spending, however, leisure spending tends to be fairly inelastic, so local spending at the Olympics is just a reallocation of spending, not necessarily a benefit to

the city. Barclay (2009) brings up another problem with current models as it relates to locals:

...impact studies will continue to neglect the effect of these events on those residents who do not attend but live in their vicinity. Indeed, many residents may dramatically alter their spending patterns to avoid either the inflated prices charged during the event or congestion caused by its visitors. Baade and Matheson (2004) thus state that a significant problem with economic impact studies is not information relating to direct expenditures but the lack of it with regards to the pattern of economic activity of those who do not attend the event.

A second major flaw in current models described by literature is the vast majority of ex ante studies ignore the demand 'crowding out' and supply side leakages in the circular flow of spending. Matheson (2006) describes crowding out by stating:

"crowding out," 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, a figure identical to the number of foreign visitors during the same period in the previous year.

These models must include this idea to fully reflect the net benefits incurred by the city. On the other side, supply side leakages also occur. Not only do people not come to the city, but all the benefits generated by the Olympics are not isolated to the economy with the burden of hosting and may not eventually end up in the pockets of the citizens whose tax dollars are going toward subsidizing the event. One example is labor leakages. If the host economy is at full employment, the labor that is necessary to host the event must come from outside cities where there is a labor surplus. These wages will not be kept in the city and the multiplier effect cannot be used on these wages as they leak from the economy. However, this is not confined to just labor. As Baade (2000) states:

If hotels experience higher than normal occupancy rates during a mega-event, then the question must be raised about the fraction of increased earnings that remain in the community if the hotel is a nationally owned chain. In short, to assess the impact of mega-events, an informed balance of payments view must be utilized. That is to say, to what extent does the event give rise to dollar inflows and outflows that would not occur in its absence. Since the input-output models used in the most sophisticated ex ante analysis are based on

fixed relationships between inputs and outputs, such models do not account for the subtleties of full employment and capital ownership noted here. As a consequence, it is not clear if economic impact estimates based on them are biased up or down.

However, this expenditure approach in estimating the impact on economic activity is the most likely approach to yield accurate results.

CASE: NEW SOUTH WALES' ECONOMIC BENEFITS OF HOSTING THE SUMMER 2000 OLYMPICS

In order to test the long-run impacts of hosting the Olympic Games, I will conduct an in- depth analysis of the Summer Olympics hosted in New South Wales in 2000 to 1) see if the Olympics produced positive results for New South Wales and 2) compare those results to the projected benefits published by the New South Wales Treasury department. In an attempt to completely understand the whole economic picture surrounding the Olympics, three distinct time periods will be examined: six years prior to the start of the games to the opening ceremony, game year results, and six years after the games.

The International Olympic Committee (IOC) chooses a city to host the Olympics seven years prior to the games. During this time, the country develops all infrastructure needed for the hosting of the games and makes all necessary plans in order to successfully host the games. This stage is where the expenditures from governments and other private organizations and businesses happens in preparation for the games and the direct effect of governmental spending will occur. Time period number one is meant to gauge how public and private spending on the preparation and construction of the Olympics effects the economy.

According to the Australian Treasury Department, the expected increase the GSP is around \$700 million per year. This equates to roughly .41% increase to New South Wales GSP and .15% of Australia's GDP. Roughly 60% of that demand stems from Olympic construction with the balance coming from increased exports of tourism. Potential benefits listed from this time period include an increase in employment and increase in real GDP per capita. Employment in the report was listed by profession but overall was expected to increase employment by roughly 0.8% or roughly 28,000 jobs. As expected, game year results were forecasted to have the highest impact on the Australian economy. The Treasury Department expected an increase of 0.27% to the Australian GDP, or \$1.55 billion in 1995 dollars generated by direct additional expenditure and by domestic consumers, interstate travel, increased export demand such as TV rights and tourism, and Olympic tickets. Employment was expected to increase 1.022% in New South Wales and equating to roughly 64,000 jobs.

The final time period examined will be zero to six years after the games. This is meant to examine the long-run benefits of the games and analyze if Olympics lead to a higher, sustainable level of economic growth. This sustained growth was projected to come from a continuation of Olympics-induced inbound international tourism, a small increase in foreign demand for Australian manufactured goods, and a small increase in the productivity of Australia's labor force. In the study, there is an expected post-game increase in GDP of 0.07%, or about \$400 million. The majority of this increase (\$325 million) was projected to come from increases in productivity from experience gained at the Olympics. Employment was expected to increase 0.455%, of 7,000 jobs.

In total, Australia expected to add \$6 billion over the 12 year period from 1994

– 2006 and add a total of 100,000 full-time equivalent annual jobs.

Methods

The purpose of this paper is to examine the pre-Olympic, game year and post-game economic gains or losses in New South Wales due to hosting the event. The goal being to find if the Olympics raised the regions GSP, total number of jobs, and compare those results to the projections of the New South Wales Treasury Department estimates. It would be possible to conduct analysis further than six years into the future to see how many years the potential benefits extend beyond the closing ceremony, but there are a number of reasons stopping analysis in 2006 is the best decision. First, economies change rapidly and to expect the dynamics of the economy to remain equivalent more than six years out allows for other variables to drive growth or reduction in the economy beyond that of the Olympics. Second, I wanted to avoid any impacts of the financial crisis of 2008, which caused many pockets of dislocation into the world economy. Concluding the study two years before more than allows for any influences to be left out of the study. Lastly, the Treasury Department only forecasted results out to 2006, so aligning my study with that allowed for equal comparisons across studies.

According to Yin (2003), a case study is the preferred method when studying the specific characteristics of a rare situation that is unique in nature.

Therefore, a case study allows for unique analysis in a more detailed fashion than would be able in a broad study trying to generalize the impacts of the Olympics.

For my technical analysis, I created a base case of how the economy would have performed without the Olympics and compared those results with reality. I

attributed the unexplained difference to the presence of the Olympics in the region. The actual economic results are easy to compile as the Australian Government publishes economic results for each month of the time period studied.

Creating a base case of the economy was slightly more difficult to create and evaluate. How I did this was assume the New South Wales region of the country would have grown at the same rate as Australia as a whole. This assumption is fairly conservative as New South Wales prior to the time period grew slower than the Australian economy. Assuming it grows at the rate of the Australian economy allows for error as a larger impact from the Olympics is needed to conclude positive results. The same assumptions are used for the base case employment growth, broken into both full and part time positions to get a better grasp on where the employment growth came from.

Limitations of the Study

There are a number of limitations to the study that potentially restrict the conclusions of the study.

- The information gathered is highly dependent on governmental bodies producing the data which may have unrelated or related political agendas,
- Economic results may be effected by unrelated, uncontrollable, external events that could sway the analysis toward or away from The Treasury's expected figures. These events may also be related to country or region specific events that would make comparison across countries and studies difficult,
- A more in-depth conclusion could be reached with a more in-depth analysis of the Australian and New South Wales economy as well as

analyzing multiple Olympic Games. However, this would be a much greater undertaking than possible in an undergraduate thesis paper.

Pre-Olympic effects

During 1994-1999, the New South Wales economy showed an unexplained increase in their economy of \$4.87 billion. According to the treasury department survey, an expected increase of \$700 million per year or a total of \$4.2 billion was expected (Crowe 1997). In an average year, the increase to GDP was \$954 million, however the project ran significantly over budget. The Australian government spent roughly \$4.77 billion versus estimates of \$2.5 billion on the Olympics over that same time period, \$1.4 billion of which was publically funded versus the expected \$1.2 billion. Therefore this expected \$700 million projection was slightly rosy considering the country spent twice as much on the Olympics and only reaped 30% more in GDP increases. The Australian economy experienced roughly \$100 million increase to the country's GDP over total expenditures signaling a slight return on investment for both the private and public sector that financed the Olympics. As the expenditures to build the Olympics are included in GDP, this does not account for enough return, in the years prior to the Olympics, to justify building the games. However, the majority of the benefits were reaped in the game year of the event.

There was an unexplained increase in total employment of 20,000 jobs at year end 1999, slightly less than the expected 28,000 from the survey. All of these job increases came from full time employment, which created 48,000. Part time employment decreased by 32,000, which together account for the total 20,000 increase.

Game year

During the year of the games, the New South Wales GSP had an unexplained increase of \$1.63 billion versus what should have happened in a non-Olympic state. According to the treasury department, they expected an increase of \$1.55 billion, stemming from direct additional expenditures of \$1.5 billion excluding re-allocation of expenditure by domestic producers to sponsorship and by domestic consumers to interstate travel. Therefore, this increase can be attributed to hosting of the games with the foreign and domestic tourists spending money in the New South Wales economy that would not have happened otherwise. These expenditures mainly included export demand including sale of TV rights and increased tourism exports. The majority of domestic spending is considered to be a reallocation of demand and would not have a meaningful impact on GSP.

Full time employment decreased 32,000 jobs during the game year. However, part time unemployment experienced gains of 21,000 jobs. This, as expected, is due to the large support staff needed to host the Olympics, but once the Olympics conclude have no job.

The estimates put out by the Australian government were highly in line with reality with regards to game-year performance. These increases, albeit large, still do not cover the total cost of the Olympics in absolute terms. The positive impact of the Olympics, therefore, must be expected to come after the games have been hosted from continued increases in tourism and export demand to cover the costs of the Olympics.

Post-game years

Post-Olympic games, the GSP of New South Wales lagged the general economy as a whole for a number of reasons not attributable to the Olympics

(Downwonder, 2007). Commodity export initiatives boosted the economy as a whole starting in the early 2000s. The vast majority of mining takes place in the northern territories so the boom did not have as great of an impact on New South Wales. Therefore, the economic conditions of the country shifted making projecting a base case of how the economy would have performed irrelevant keeping consistent my assumptions.

It is reasonable to argue the Olympics did not drag down the economy in the post years, but it is hard to argue it did boost the economy. The growth rate of New South Wales in the 6 years after the Olympics averaged 5.5% relative to 5.8% during the pre-game stage, signaling there is not as much of a long-term effect from the Olympics as the game year and five years prior. From this, conclusions in the literature review citing the minimal, if any long term effects of hosting the Olympics are reasonably supported from the case of Australia.

Concluding Comments

This paper has focused on the economic implications of the Summer Olympics hosted in New South Wales and also comparing the actual results of the Olympics to the projections forecasted by the Australian Treasury Department to test the reasonability of this study. The paper has examined a base case economy as if New South Wales did not host the Olympics and compared those figures to reality. The study was broken into three different parts: economic effects prior to the Olympic Games to capture preparation and construction spending, the year of the games, as well as economic standing six years following the games. The majority of the benefits received were reaped prior to the game where the economy saw an increase in GSP

from the Olympics of \$4.9 billion dollars total over the six year time period. During this, the number of employed people increased 20,000 more than in the base case economy, all of the gains coming from full time positions. The largest increase in GSP in one year was in the 2000, the year of the games, where the economy saw an increase of \$1.6 billion over the base state economy. All of these figures were in line with what the Treasury department projected, with an average annual increase of \$954 million per year vs. estimates of \$700. For the Olympic year, estimates of a \$1.5 billion increase are in line with reality which beat estimates at a \$1.6 billion increase. However, no long term effects were found which may be due to the changing dynamics of the Australia's economy post Olympics in other regions. Other counties will have to be studies with a more constant economy to evaluate the long-term economic effects of hosting the games.

In total, New South Wales saw a total net gain from hosting the Olympics. The amount of gain, which in total equaled roughly \$1.7 billion, (calculated as total increases to economy over base case less cost of hosting) was not as significant as the Treasury expected due to underestimating the cost of the games. This provides evidence of one instance where a host region was a net economic gainer from hosting the Olympics which can be used in subsequent studies on other host regions to one day compile an all-inclusive view on the economic benefits or cost of hosting the games.

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