ECONOMIC IMPACT OF SPORTING EVENTS USING THE CASE OF 2015 CANADA WINTER GAMES

by

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Abstract

Economic Impact studies have been a popular research topic among Economists. These studies look at the direct, indirect and induced effect of hosting or bidding on sporting, cultural or other events. This paper identifies a few of the more popular methodologies for conducting an economic impact study as well as the benefits, drawbacks and reasons for using each method. As well, an economic impact assessment of the 2015 Canada Winter Games is carried out using 2 methods.

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Abbreviations

MSE: Mega sporting event

GDP: Gross Domestic Product

CSTA: Canadian Sport Tourism Alliance

STEAM: sport and tourism economic assessment model

CTRI: Canadian Tourism Resource Institute

TEAM: Tourism economic assessment model

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Chapter 1
INTRODUCTION

Prince George, BC is hosting the 2015 Canada Winter Games. This is slated to be the largest sporting event in the northern part of British Columbia, which is known for its resource-based industries. Northern BC absorbs only 7.7% of B.Cs population but constitutes 77% of its land mass and nearly 50% of BC's GDP (Initatives Prince George n.d.). Organizers, bid committee members and the City of Prince George describe this event has been described as a once in a life time opportunity to showcase Prince George and the northern part of British Columbia to the rest of Canada and the world. Some of the early estimates (commissioned by the bid committee) showed the economic impact to be in the range of $70-$90 million for the region, with an estimated cost of $55 million. Many residents of Prince George opposed the bid for the 2015 Winter Games, mainly due to the financial requirements of the ailing local economy at the time of the bid. This divergence of views was also fuelled by the fact that many mega sporting events had turned out to be financial disasters (Montreal Olympics in 1976 and Athens in 2004).

Mega sports events (MSEs) are not only grand sporting arenas promoting the sporting spirit but also great stages on which cities promote

themselves to enhance their images for long-term economic gain. Mega events also bring other effects, such as social, political and cultural impacts (Blake and Li, 2008). Although the economic impact of MSEs is not the only important aspect of the mega event, it is one of the most significant indicators of the event's outcomes.

The nature of the impact of the MSE's outcome depends on whether one is using an economic impact study or a cost-benefit analysis as an analytical framework (Kesenne, 2005). An economic impact study measures the flow of money into the region (country), while a cost-benefit analysis looks at the benefits and costs to the local population. There is considerable literature on the economic impact of mega sports events, and they could be broadly classified as: (a) impact of event tourism (Getz 1989, 1991; Hall 1992; Kang and Perdue 1994; Carvalhedo 2003; Dwyer et al. 2004; Chalop and McGuirty, 2004; Solberg and Preuss, 2006), (b) employment impacts (Ritchie, 1984, 1996; Burns et al, 1986; Mules and Faulkner, 1996; Hotchkiss et al. 2001; Hagan and Meannig, 2007), (c) urban development (Evans, 1995; Hughes, 1993; Meyer-Kunzel, 2001), (d) environmental impacts (May, 1995) and (e) social impacts (Shultis et al, 1994; Hodges and Hall, 1996; Lenskyj, 2002; Fredline et al, 2003; Misner and Mason 2006; Smith and Fox, 2007)[1]. The economic impacts for all summer Olympics between Los Angeles 1984 games and the Athens games in 2004 are estimated to be in the range of $2.3 billion to $15.9 billion (Kasimati 2003). The Canada Winter Games 2015 is substantially different from other MSEs. It is a shorter-duration event with

[1] See Kasimati, 2003 and Veraros et al. 2004 for review of literature on the subject.

little international effect. The present study builds on the experience of similar events within Canada, which is primarily based on tourism impact in the northern part of British Columbia.

The travel and tourism industry is one of the world's largest industries. It accounts for $2 trillion US of worldwide Gross Domestic Product (GDP) and 98 million jobs (World Travel and Tourism Council 2011). Using total impact (direct, indirect and induced), it accounts for over US $6.3 trillion. As shown in appendix 1, the Canadian sport tourism industry had a $1.061 billion impact on the Canadian GDP (The Outspan Group Inc 2009). In 2007, British Columbia saw sport tourism impact the GDP by $131 million (Appendix 2).

To understand and estimate the tourism impacts, many models are used. One of the popular and scientific methods is to use the "visitor-survey" and "input-output" methods. The visitor survey method, which is based on data from past events, has yielded divergent results, mainly because of the divergence in the definition of a tourist For example, one approach may define a tourist as a person more than 100 miles away, and another may use 300 kilometers away as the criterion. The other model for economic impact studies is the input-output method. For one to acquire the most accurate event data, the numbers need to come from the event itself rather than comparable events. Therefore, this method is preferred due to its accuracy. In Canada, the Canadian Sport Tourism Alliance (CSTA) developed a model in 2002 to quantify the economic impact of sporting events hosted in Canada. The CSTA has built a model from survey research from over 50 events in various

cities in Canada, supplemented by data from Statistics Canada and other sources. This model is generally referred to as the Sport and Tourism Economic Assessment (STEAM) Model,[2] and it remains the pre-eminent model to assess tourism impacts. The STEAM model is based on an estimation of visitor numbers and expenditure. A common method of estimating visitor expenditure is through surveying a probability sample of visitors. The survey may consist of an exit interview, or the users may be asked either to record their daily expenditures in diaries or to recall them after the fact. Users of the STEAM model have the added flexibility of using an array of data reflecting various scenarios/events that themselves reflect heterogeneous local characteristics and "multipliers" measuring ultimate impacts. The present study uses this well-developed analytical and empirical framework to quantify the direct impact of the 2015 Canada Winter Games. As well, economic impact has been calculated using an alternative method, the multiplier method, for comparison. The study is organized as follows: Chapter 2 reviews the literature on the subject and lays the analytical foundation for empirical investigation. Chapter 3 is devoted to a discussion of the databases and methodology used in the study. Chapter 4 is a community analysis of the host community; as well, it takes a look at long-term and unmeasurable effects of hosting such an event. Chapter 5 presents the empirical results, and Chapter 6 summarizes the conclusions.

[2] See, http://canadiansporttourism.com/industry-tools/steam-sport-tourism-economic-assessment-model.html (Accessed on February 8, 2013).

Chapter 2
REVIEW OF LITERATURE

This chapter briefly reviews the literature on the impacts of mega sports events (MSEs) and develops an hypothesis for empirical verification. This chapter is organized as follows: Section 2.1 reviews the literature on macroeconomic impacts of MSEs. Section 2.2 discusses the multiplier impacts of MSEs. Section 2.3 discusses the stock-market impacts. Section 2.4 discusses the tourism impacts, and Section 2.5 discusses the STEAM model.

2.1.Macro Impacts

There are a number of studies identifying the economic impacts of sports franchises, stadiums, and MSEs (Kasimati 2003, Holladay and Billings 2011). Almost all the studies are ex post studies, and some conclude that MSEs such as the Olympic Games or the FIFA World Cup do not exert any significant impact on such economic indicators as the GDP at the national level. The average US Super Bowl's economic impact is estimated at $300 million (US$) by the NFL; the expenditure consists of an estimated 0.1% of the annual personal income within a large metropolitan statistical area. Thus any positive impact of MSEs would almost be miniscule as the data becomes more aggregated.

2.2. Multiplier Analysis

Another way to assess the macroeconomic impact of MSEs via is the "multiplier" framework. Briefly, a multiplier estimates the number of times a unit of currency, once spent within an economy, is re-spent within the borders of that economy. The overall effect of the new money on the local/regional/national economy is broken down into three major elements. They are: (1) direct effect: the first economic effect of the new money spent by outside visitors; (2) indirect effect: the subsequent effects of the injected money within the economy, after allowing for leakages; (3) induced effect: the proportion of household income then re-spent in other businesses in the economy. The indirect and induced effects together are collectively referred to as *secondary impacts* (Crompton, 1995).

Although the sales multiplier is the one most often used in economic impact studies, Crompton (1995) argues that the household-income multiplier is the most relevant for assessing the economic impact of hosting a sporting event, as it focuses particularly on the effect of the injected money on residents' incomes and their standards of living. In contrast, the employment multipliers are the least reliable (Fletcher and Snee 1989; Crompton, 1995). The basic assumption employment multipliers is that there is full utilization of existing employees, this may create errors in calculating the increase in the level of employment, particularly for "one-time" MSEs. The short duration of the MSEs does not necessarily justify the hiring of new employees. Thus there

is no the generation of permanent full-time jobs or sustainability of the employment effects.

2.3.Stock-Market Impacts

The actual impact of MSEs is generally spread over several years, and it is difficult to quantify its impacts. Researchers have recommended looking at financial-market impacts as a proxy for the anticipated impact of MSEs. The stock markets' reaction to the Olympic Games announcement has been investigated in single-event case studies by Berman et all (2000) (for the 2000 Summer Games in Sydney) and Veraros et al., (2004) (for the 2004 Summer Games in Athens). Mirman and Sharma (2008) have investigated the stock-market impact for Olympic Games from 1996 to 2010, thereby testing the stock-market reaction of winners and losers around the announcement date. They found that stock markets in winning countries perform significantly worse than in losing countries at the announcement of the Winter Games, whereas there are insignificant results for the Summer Games. Mirman and Sharma (2010) also analyze stock-market reactions in countries competing to hold both Summer and Winter Games between 1990 and 2012. They have found significantly negative stock-market reaction for winners of the bid to host the Winter Games and insignificant positive reaction for winners of the Summer Games.

2.4. Tourism impacts

Prior research has argued that the enduring economic benefits of MSEs are found in tourism impacts (Getz, 1994; Tyrrell and Johnson 2001; Crompton *et al* 2001; Hodur and Leistritz 2006. There is a general

consensus that tourism impact measures related to economic impact assessment are conceptually simple, but the actual collection of such information is extremely difficult and time consuming. Household surveys are based on questionnaires administered to a sample of the population, with respondents normally asked about past behaviour. Surveys of visitors are often conducted at popular tourist destinations and typically take the form of personal interviews by teams of researchers. The information provided leads to estimates of the volume and value of tourism and visitor profiles.

2.5. STEAM Model

The STEAM model is one of the popular approaches to measuring tourism impacts. Inputs to the model include not only basic data on visitor numbers and attendance at attractions but also available rooms in the area and occupancy levels by type of accommodation. The model does not claim to be a full input-output analysis model; rather, it is a spreadsheet model where outputs include estimates of visitor expenditure and employment supported by tourism. The model quantifies the local impact of tourism for both overnight and same-day day visitors.

The vast majority of published work regarding economic impacts studies has been done at the Olympic level. A national event such as the Canada Winter Games will see little effect from foreign countries; therefore, it is difficult to assess multipliers. Where economic impact reports are concerned, the calculation of the multiplier is the most debated area. There is considerable disagreement on how to calculate a multipler, and some argue

most aspects cannot be measured. As well as the monetary impact, these mega events have social, political and cultural impacts that need to be considered but are difficult to quantify (Blake and Li, 2008). The CSTA is the organization in Canada that completes nearly all the economic impact reports for Canadian sporting events. Valuable insight can be gained from the CSTA, as it has conducted surveys at over 50 sporting events across Canada, including summer and winter sports as well as spectator- and participant-based events (Canadian Sport and Tourism Association 2011). The data received from the CSTA should be reliable because of the large coverage of these studies. The CSTA uses a nationally developed set of multipliers and coefficients that have evolved over the various events, keeping the analysis consistent across events. There are concerns that this data may not correctly factor in the size of the city, the presence of surrounding cities or current costs for things such as hotels and food. An example of why it is difficult to use data from other cities is as follows: if a host city is far removed from a major city, the number of day-trip tourists may be different. The amount spent on hotels, number of day trip a visitor take and many other variables may differ compared with other locations that have hosted this type of event.

There are over 50 events for which the CSTA has completed pre- and post-economic impact studies. The Economic Planning group was commissioned to conducted a post-games analysis for the 2008 BC Games and found a 38% difference between its data and the pre-event STEAM-reported competitor and participant spending (The Economic Planning Group,

2008). The report by the Economic Planning Group outlines some reasons for such disparity between the nationally recognized data. The STEAM model may have used national multipliers that did not fit the region. As well, expenditure data was from 3 years prior to the event, BC Games had significant non-local spectators because most families came from other regions, and all accommodations needed to be roofed in (no campgrounds because it was February). . This is an example of why it is difficult to gain accurate data when using provincial or national data. This information is useful in evaluation of the model that nearly all sporting events are subject to and needs to be considered when groups are evaluating economic impact studies within Canada.

This project includes a pre-event economic impact study; therefore, most numbers that are generated are forecast using information from previous events and local tourism information. Surveyed literature indicates these types of reports are biased. Matheson suggests the difference between reports is explained by the fact that these reports are highly subjective and subject to significant error or manipulation (Matheson 2002). Matheson also suggests that agents with a vested interest in the outcome cannot give an objective examination. Using information from prior reports might be difficult if one were to adopt Matheson's theory of reports being biased towards great economic gains. Matheson identifies 4 limitations of economic impact studies. The first limitation is the substitution effect: the extent to which attendees at an event spend their money on that event instead of on other activities in the

local economy. The argument that there is no net increase in economic activity is valid because there is a finite amount of money local people can spend. There are locals who will attend a given event, but there will also be thousands of spectators, athletes, coaches and referees who will come and spend new money in the local economy. Also considered net gain are private sponsorships. The provincial and federal governments contribute millions towards the summer and winter Canada games events. The money pledged is based on how much tax money is derived from the event. The governments do provide more funding than the tax amount, but the majority of the funding provided is essentially a reinvestment that produces net gains for the local economy because that money is reinvested into another economy. At the municipal level, the city's taxpayers are contributing. If the event were not happening, the money would be spent elsewhere, an illustration of the substitution effect. The 2015 Canada Winter Games requires minimal infrastructure, considering the size of the event and the size of the community. This reduces the net gains from local money. The majority of operational capital expenditure (Appendix 4) is for the Kin 1 Ice Rink project. This facilitiy is needed for the 2015 Canada Winter Games but the rink arguably needed to be reconstructed without this event happening.

The second limitation Matheson discusses is the crowding-out effect. This happens when the competition takes place at a time during which hotels and restaurants in the host city tend to be at or near capacity. The hotels in

Prince George will likely feel the crowding-out effect more than restaurants or rental agencies due to the large number of rooms the participants will require. The third limitation is whether the money spent locally stays in the economy. Most hotels, rental car agencies and restaurants are national chains rather than locally owned enterprises, and the profits earned befit the stockholders around the country. The fourth limitation of the studies (cited by Matheson) is the noneconomic costs such as traffic congestion, vandalism, environmental degradation and disruption of residents' lifestyle (Lee 2001). These are all considerations that need to be made at bid time. The conclusion Matheson draws in his research is that one must view these reports with extreme caution when they contain MSEs or stadium construction.

There are numerous strategies for conducting an economic impact study. This makes comparing different-sized events in different regions difficult. A large portion of research into Olympic economic impacts of sporting events comes from Adam Blake, currently of Bournemouth University. Blake's work in developing frameworks for Olympic-related investment and expenditures is proving to be very current and relevant for identifying expenditures throughout the phases of the Olympic Games (pre-games, games, post-games period) and for events at different levels. The article in the International Journal of Tourism Research co-authored by ShiNa Li, "Estimating Olympic related Investment and Expenditure," shows the distributional effects between the host city and the foreign economies. This is important to understand because a large portion of funding is often received

from sources outside the host city. This funding is new money that would not have been generated through other economic activity. The article also makes the suggestion that while the economic impact of a mega event can never describe the whole picture, it is one of the most significant indicators of the event outcomes (Blake and Li, 2008). The rest of the picture is difficult to measure or quantify. The framework introduced by Li and Blake identifies six main types of investment and expenditure. The expenditures are operational expenditures by the games committee, investment in related infrastructure, investment in venues and related facilities and exports and foreign investment. There are inherent limitations to economic impact studies and Blake's framework that need to be considered, including economic costs such as the crowding-out effect, interruption of normal business and under-utilized infrastructure (Dwyer, et al. 2000), and noneconomic benefits and costs (Blake and Li, 2008).

There are two major methods commonly used in determining the viability of an event, economic impact study and cost-benefit analysis. Stefan Keseene discusses if either are necessary in his article, "Do we need an Economic Impact Study or a Cost-Benefit Analysis of a Sports Event?". This discussion is important because of the amount of time and energy put into these reports, as well as the manner in which they are weighted. It is evident that while some reports are for intellectual curiosity, many are made in the interest of politicians and administrators who want to realize a (too expensive) sports project (Kesenne 2005 Vol. 5, No. 2). Kesenne believes that even when

done properly, economic impact studies are not good indicators for a government looking to support a project. Only the comparison of costs and benefits in a cost-benefit analysis provides a sensible argument for government support (Kesenne 2005 Vol. 5, No. 2). The major reason for his assertion is that economic impact studies do not measure the net benefit to a community, as they do not include opportunity costs. Some opportunity costs that cost-benefit analysis can include, identified by Kesenne, are alternative uses for money that is used for construction, different events that could have yielded higher benefits, foreign visitors crowding out regular visitors and the employment of workers could be from an industry in short supply (construction workers). These opportunity costs are important for a government evaluating a proposed event to consider. Kesenne also identifies some long-term effects of hosting such an event that should be considered even when a cost-benefit analysis' comes out negative, such as increased sports participation rate, health and labor productivity. These are difficult to estimate or quantify, so they are often left out (Kesenne 2005 Vol. 5, No. 2).

The primary objective of this study is to measure the economic impact the 2015 Canada Winter Games will have on Prince George. In 2007, Canadian sport tourism accounted for over $1 billion of the GDP, 24,000 jobs and $670 million in wages and salaries, as seen in Appendix 1. Cities across Canada need to take every opportunity to be seen positively on a national platform while seeing economic benefits. This project will also show that although there has been comprehensive research into economic impacts and

sport tourism, the most accurate figures for total impact can only be calculated upon the conclusion of the event. This paper will also show that all groups looking at economic impact studies need to look beyond the financial implications of the event and consider non-monetary impacts.

It is also the objective of the study to measure how the city of Prince George will be affected in the long term. The socio-economic, social, cultural and political impacts need to be considered and understood when an event of this magnitude is taken on. Due to the size of the city and its current facilities, this event is the largest sporting event the city could undertake. This means no other single Canadian sporting event could have more of an impact on the Prince George economy.

Chapter 3
DATA SOURCE AND METHODOLOGY

This chapter briefly discusses the data source and methodology used in the empirical investigation. This chapter is divided into two sections. Section 3.1 discusses the various methodologies discussed in the literature and presents methodological framework. Section 3.2 discusses the database used in the empirical investigation.

3.1Methodology

There are various methodological frameworks to estimate the impact of an event on an economy. However, as described in chapter 2, it is difficult to quantify the actual impact of MSEs, as their impacts on the economy are long-term. As mentioned in Chapter 2, to assess the macro economic impact of MSEs, the "multiplier" framework is widely used. This method has three elements that break down how money is spent and respent within an economy: (1) Direct effect: the first economic effect of the new money spent by outside visitors; (2) indirect effect: the subsequent effects of the injected money within the economy, after allowing for leakages; (3) induced effect: the proportion of household income then re-spent in other businesses in the economy. The indirect and induced effects together are collectively referred to

as secondary impact (Crompton, 1995). This method can be adopted if one has all the required data. It would not be an appropriate framework under the consideration the event is ex-ante, meaning it has not happened. Secondly, estimation of multipliers depends on the availability of input-output co-efficients for the Prince George economy, which are unavailable. The following table shows different estimates of multiplier impacts for an event on a large city.

Table 3.1- A Comparison of the Sales and Household Income Multipliers for an Event in a Large City

	Sales Multiplier				Household income multiplier			
Category	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Food & beverages	1	0.32	0.47	1.79	0.29	0.08	0.13	0.50
Admission fees	1	0.23	0.46	1.69	0.36	0.07	0.13	0.56
Night clubs, lounges & bars	1	0.29	1.31	2.6	0.36	0.08	0.32	0.76
Retail shopping	1	0.23	0.56	1.79	0.46	0.05	0.16	0.67
Lodging expenses	1	0.43	0.57	2	0.29	0.11	0.16	0.56
Private auto	1	0.23	0.2	1.43	0.27	0.07	0.06	0.40
Commercial transportation	1	0.22	0.29	1.51	0.52	0.05	0.08	0.65
Other expenses	1	0.23	0.56	1.79	0.46	0.05	0.16	0.67

(Crompton, Economic Impact Analysis of Sports Facilities and Events: Eleven Sources of Misapplication 1995)

I. Financial Market Impacts

One method of measuring economic impact is the estimate of financial market impacts as a proxy for the anticipated economic impact of MSEs. Mirman and Sharma (2010) analyze stock-market reactions in countries

competing to hold both the Summer and the Winter Olympic Games between 1990 and 2012. They find significantly negative stock-market reaction for winners of the bid to host the Winter Games and insignificant positive reaction for winners of the Summer Games. This method is inappropriate for this event, as there is no stock market that would be affected due to the size of the event and the event's proximity to a nearby stock exchange. While this is a national event, the effects are felt in the local economy rather than across Canada.

The impact of tourism needs to be considered to aid in strategic planning for communities and events. The tourism industry adds jobs and funds to an area, which leads to improved infrastructure and services available to locals. This methodology for measuring economic impact is the easiest concept to grasp, but the collection of such information is extremely difficult and time consuming. Household surveys are based on questionnaires administered to a sample of the population, with respondents normally asked about past behaviour. Surveys of visitors are often conducted at popular tourist destinations and typically take the form of personal interviews by teams of researchers. The information provided leads to estimates of the volume and value of tourism and visitor profiles. As stated above, this is very time consuming and difficult, due especially to the fact that visitors come from across Canada.

The 2015 Canada Winter games is a national event whose impact is felt in the host community. To complete the economic impact study, the

STEAM model is widely used across Canada. This model uses a combination of visitor surveys and economic multipliers that have evolved from over 50 events. The inputs into the model were forecast by using information from prior events or similar events. Some of this input data has been collected by the CSTA; as well, some primary data regarding direct impacts has also been received from the Games Host Society. All pre-economic impact reports use multipliers from similar events and regions. The multipliers used to calculate results in this analysis are built into the CSTA STEAM model and are set based on the event type, location and size.

Each country has multipliers created by various organizations. The CSTA uses data collected from over 50 sporting events and Stats Canada data. This data is used to determine the amount and effects of each dollar spent. The purpose of this project is not to create new multipliers, as there is not sufficient meaningful public data to create these multipliers for a pre-event analysis. It is meant to show that economic impact studies have their strengths and weakness, and each analysis needs to be evaluated on a case-by-case basis. For example, the Athens Olympics came at a huge cost, but at the time, the benefits seemed to outweigh the costs. Almost a decade later, the infrastructure is left unused and disintegrating. While it may have seemed, based on the economic impact, to be a cost the city could afford, there was not significant long-term benefit for the community.

3.2 Database

The input data results were collected using past event averages and expected visitor profiles based on competitors eligible for events, the number of family members expected to accompany athletes and officials, and media and VIPs projected to attend. Numerous events including the last four Canada Summer and Winter games were examined for abnormalities, but the numbers of athletes, coaches and media have been fairly consistent for this event. Therefore, the event data used was from the 2007 Canada Winter Games—Whitehorse and the 2011 Canada Winter Games—Halifax. These are the most recent Canada Winter Games, and the sample averages of the events provide the best picture for visitor profiles. Whitehorse is a rural setting with very little surrounding spectator population, while Halifax has more surrounding communities to draw from. The sample mean of these two events gives a good indication of how many spectators and family will attend the Prince George event.

The purpose of collecting the data and formulating a result is to see the impact the event will have on the economy of Prince George and BC. However, the data will be used to aid in developing plans to meet the needs of everyone expected to attend. The data compiled about how many people will attend and what types (spectator, VIP or media, etc.) of people will help organizers book and set up appropriate facilities for the event. It also helps to find appropriate lodging within suitable distances, and it helps in planning events within the games such as the opening and closing ceremonies.

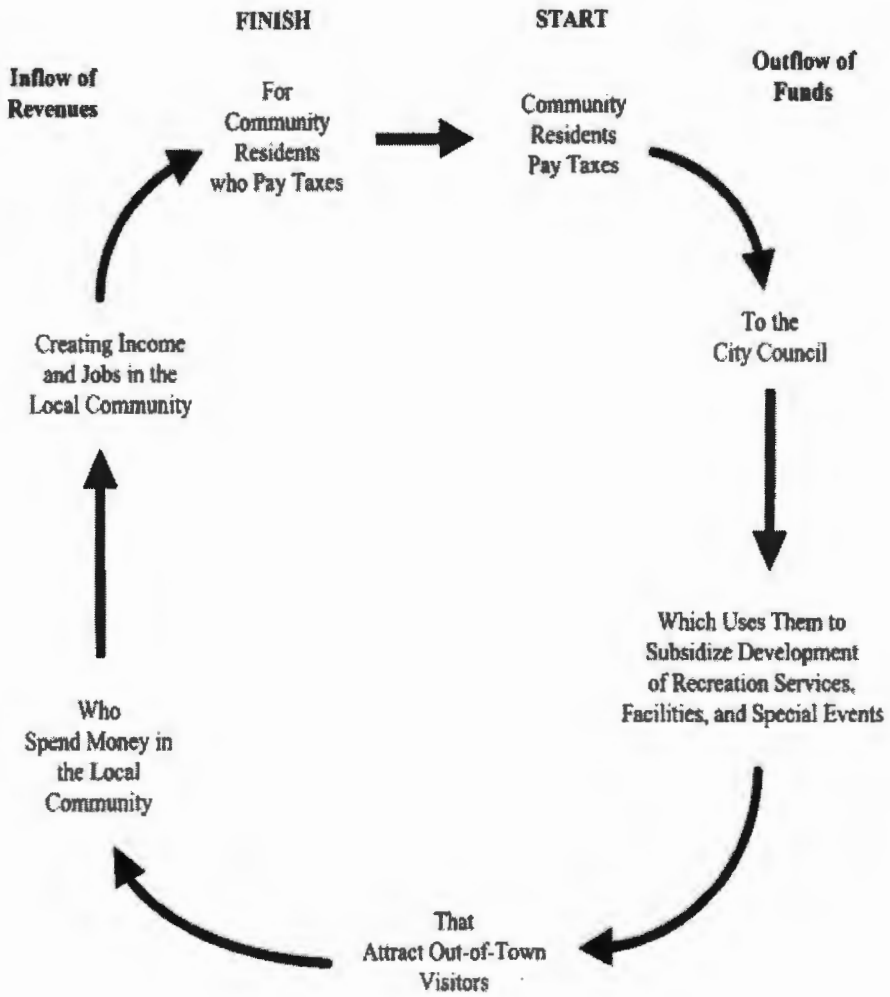
Another purpose to this research is to see if rural populations should take on these types of events and how the impact differs with being further removed from a more urban center. The more urban centers have logistical advantages and the ability to draw more spectators and volunteers, thereby creating a larger impact. While the numbers of athletes, coaches and referees were consistent across past events, the number of spectators did change based on event location, but this variation did not correlate with spectator expenditure. A more rural location such as Whitehorse (2007 Canada Winter Games) experienced about 30% fewer spectators than the same event in Halifax (2011), yet it saw almost 30% higher visitor spending (Canadian Sport and Tourism Association 2011, Canadian Sport and Tourism Association 2008). This is likely due to the higher costs of visiting a place such as Whitehorse.

The purpose of economic impact analysis

The purpose of an economic impact analysis is to show quantifiable benefits that accrue to the host city or region. Almost all studies are commissioned to prove such an event will be economically feasible and therefore must show a net gain to the host area. If an event does not require any public funding, support or infrastructure, then an analysis of this kind will be of little value due to the cost to complete. The assumption is that every sizable event requires some public funding, as it is generally more suitable than private funding (Crompton, 1995). An example of this is when NHL teams require a new arena. An arena is a huge expense and is used by multiple groups to benefit the public; therefore, it would not be a suitable

investment for a hockey team that only uses it part of the year. The purpose of public funds is shown in the following figure:

Figure 3.1 - The conceptual rationale for undertaking economic impact studies



(Crompton, Lee and Shuster, A Guide for Undertaking Economic Impact Studies: The Springfest Example 2001)

The reality is that these studies are easily manipulated, intentionally or unintentionally, depending on numerous factors. Some reasons for this

manipulation are: variable inputs change based on the event; the people completing the study change, which makes opinions on amounts differ; what to include within the study changes; multipliers change, giving widely varied results for similar events. STEAM, developed by the CSTA, attempts to make these reports more comparable by allowing a predetermined set of inputs based on the type of event and region. In theory, it makes comparing similar events in Canada easy from a government perspective, which makes funding decisions analogous across events.

Limitations of Economic Impact reports and STEAM (Sport Tourism Economic Assessment Model)

"The STEAM model has evolved to provide a standardized methodology by which to assess the economic impact of sporting events on a community. Presently, the model allows for the comparison of the economic impacts of different events in different communities, and an estimate of the municipal economic impact of hosting a sporting event" (Canadian Sport and Tourism Association 2011). While this STEAM model is the most developed model in Canada for sporting events, it comes with limitations when one is trying to understand the total impact of an event. The ease and adaptability of the program make it easy for organizations to gauge the feasibility of an event, but the final data needs to be considered with the models limitations in mind. This input-output method includes direct, indirect and induced impacts. The direct impacts are easy to interpret because they are easy to see. For example, you can see how many individuals are employed at an event. The indirect impacts are more difficult to observe, but they refer to the supply of goods and

services in industry sectors. The last impact measured is induced; the multipliers for this impact are the most controversial and inconsistent. Induced impact is the amount generated by the consumer spending by employees of an event and business spending of retained earnings from an event.

The first drawback to this method is that the data may not be consistently collected or complete due to data consisting of small samples in specific locations. The second drawback of this method is that for areas that are far removed from major centers, the multipliers may change. The multipliers show the secondary effects, also referenced as indirect and induced impacts. The size of the multiplier depends on the region's economy. An example is as follows: the proportionality of suppliers to hotels or restaurants is significantly lower in Prince George than it is in Vancouver because Vancouver is much more economically diverse. Therefore, the multiplier should be much lower.

Chapter 4
COMMUNITY ANALYSIS FOR PRINCE GEORGE AS A HOST CITY

4.1 Community Overview

Incorporated in 1915, Prince George has a total land area of 316 square km (2006 Census). It is situated near the center of British Columbia, Canada and is in the Fraser Fort-George Regional district. Based on the 2006 census, the population sits just above 72,890, with roughly 11% being of aboriginal descendents. Despite the fact that it is located at the crossing of the Nechako and Fraser Rivers, the main sources of transportation are rail, pipeline and road transport.

The community enjoys a dry climate with four complete seasons and activities to suit each of them. Within the city, there are eighteen outdoor and six indoor soccer fields, seven ice rinks, two aquatic facilities (one deemed world class), numerous gyms, self-defense clubs, and dance clubs, 120 parks within the city limits, 1,600 lakes and streams within one hours' travel time, downhill and cross-country ski facilities and much more (City of Prince Georg 2012).

From an investment perspective, Prince George and the surrounding area are rich in resources such as timber and mined resources such as coal.

The largely unchanged unemployment rate of 7.6% from the 2006 Canada Census shows there is sufficient unemployed labour available for capital projects.

4.2 2015 Winter Games Overview and Required Facilities

From February 12 – March 1, 2015, the city of Prince George will host the largest multi-sport and cultural event ever hosted in Northern British Columbia. The sports involved are: alpine skiing, ice hockey, curling, freestyle skiing, biathlon, cross-country skiing, snowboarding, long and short track speed skating, figure skating, ringette, badminton, judo, archery, artistic gymnastics, trampoline, target shooting, squash, synchronized swimming, table tennis, para-alpine and para-nordic skiing, and wheelchair basketball (2015 Canada Winter Games n.d.)

The games will bring over 3,600 athletes, coaches, managers and officials to the city and will require up to 6,000 volunteers for the 18 days of the 2015 Games.

4.3 Local Impact: After winning the bid to the 2015 Winter Games

The three main benefits to the residents of Prince George are improved sports facilities, enhanced infrastructure and the opportunity to attend the events. The residents of Prince George will see upgrading of numerous facilities prior to 2015, including a major capital upgrade, the Kin 1 hockey arena. The $18.5 million capital projects budget is largely taken up by the $15.8 million Kin 1 project. Some other facilities will see upgrades with this funding and other funding raised by user groups. The facilities to be used for

the 2015 Games are: CN Centre, Kin Arena Complex, Aquatic Centre, Northern Sports Centre, Coliseum, Outdoor Ice Oval, College of New Caledonia, Elkscentre Arena, Duchess Park Secondary, Prince George Secondary, Tabor Mountain Ski Resort, Purden Ski Village, PG Golf & Curling Club and Otway Nordic Ski Centre. Also to be used for accommodation and non-sporting activities are the Prince George Civic Centre, Prince George Civic Plaza and numerous downtown hotels.

From the point of winning the bid to the start of the 2015 Winter Games, the executive team is working on the sport and accommodation venue modifications/preparations, revenue generation and forecasting to ensure that everything is done to meet the demands of this event. There is a large cultural component of the event that will include numerous First Nations groups throughout the area. Having the cultural component will help to improve the image of Prince George and Northern BC to the rest of the country. As well, the intent is to attract visitors and investment to the region.

4.4 Local Impact: During the 2015 Winter Games

The local impact may not be felt for many residents of Prince George until the games commence. Once visitors to the games arrive, residents will find busier roads, restaurants and retail shops. The celebratory atmosphere that is likely to be created during the games should be enjoyable to most residents. Those finding the atmosphere less enjoyable may retreat during the games due to traffic, security or simple disinterest.

4.5 Local Impact: After the 2015 Winter Games

With years of planning and a projected impact of $90-$110 million to the region, it is foreseeable that residents of Prince George will enjoy the effects of the games for many years afterwards. The intention of the executive committee is to leave a legacy fund to help fund athletics in the city for years to come. This is contingent on having a surplus over the amount spent and will come from sponsorship, merchandise and ticket sales. Time will tell if this is feasible in this economy, and it should be noted that the taxpayers of Prince George will be required to pay any remaining costs from the games should the revenue generation not meet expenses.

The after-effects of such an event to the region are difficult to measure. Hosting an event of this magnitude will give the region significant positive exposure that may not have been otherwise received because of the limited population and location of Prince George relative to an urban center. The short-term after-effects of hosting this event are easier to measure through tourism groups in the region, but the long-term effects are more difficult to quantify. In the long term the region should see improvements in tourism infrastructure and services, as well as possible increases in tourism activities.

4.6 Volunteer Characteristics

The Games will require up to 6,000 volunteers over the next 3 years, with the largest amount of work to be done from January to March of 2015. The majority of these volunteers will come from the segment of the Prince George population that is over 15 years old, which is 56,745 people (Stats Canada). Some volunteers from other regions of British Columbia are

expected to participate, mainly because of interest in specific sports; however, this figure is difficult to predict at this time. The volunteering age group is expected to be 20-65 and consists of 45,135 people. The planning of the games will need to consider how to get nearly 15% of the 20-65 population involved in what is largely a sporting event.

4.7 Labour Market

The success of the games depends on volunteer participation as well as purchases of merchandise and tickets. The labour market and income levels will dictate the disposable income available to enable community members to participate financially. The participation rate in the labour market is approximately 72%, which is significantly above the provincial rate of 65.6%. However, the unemployment rate of 7.6% is higher than the 6% provincial average. If the 7.6% unemployment rate remains constant, it should not affect the required fundraising. The median income level in households will impact local people's ability to attend the event. From the 2006 Census, couples with children earn $89,298, couples without children earn $73,599, and private households earn $51,039.

4.8 Social Infrastructure

Prince George is bursting with various community groups that are being engaged in the development of the games, including local sports clubs, cultural groups, service clubs, and other community organizations. These groups are being engaged early in the planning process because of their integral role in the success of the games. Other agencies such as police, legal, health, media and other services will need to be engaged throughout the

planning process because of the impact the games will have on them. For the games to be a success, they will need up to 6,000 volunteers, and these volunteers will need to have various skill sets to help in the different areas required.

4.9 Physical Infrastructure

In preparation, the only major structural change will be the Kin 1 hockey arena. However, in the weeks prior to the games, numerous facilities will be temporarily retrofitted to fit specific needs. Each venue will have its own adjustments. For example, most downtown hotels will have furniture removed in favour of sets of bunk beds to house the numerous athletes visiting. Types of issues that will need to be addressed at each venue include water, sewage, transportation, electricity, parking areas and many more. A few of the facilities are outdoors and will rely on good weather, so contingency plans will also need to be in place. Prince George is a sports-oriented city, making this type of event, when compared with an arts or cultural event, a good fit for the city and its existing infrastructure.

4.10 Economic Infrastructure

The community of Prince George is fully developed and able to handle an event of this magnitude. The area has established communication, distribution and transportation networks, as well as energy-supply systems. Some of these systems may need adjustments to meet the games' needs because some venues are rural; however, for the most part, the current facilities will make the activities possible. An example of an adjustment needed is the ski hills not having high-speed internet. The games will require

instant updates on score or placing, so alternatives will need to be found where the existing infrastructure is lacking. The area boasts numerous strong industries to support the games, including manufacturing, business services, health care and social services, retail trade and educational services.

4.11 Opportunities

For Individuals

There are many opportunities within the games for individuals. Individuals wanting to be involved can get experience in coordination, planning or implementation of a major event. Individuals can gain experience in their sport, a new sport or something complementary to their sport. The memories created from the experience will last a lifetime. There are numerous housing needs. If people are able to accommodate home stays, they can develop friendships and learn from people with various backgrounds.

For Businesses

Prince George employs over 4,000 people in the retail industry (BC Stats). This industry is going to benefit the most from the number of people who visit the city for the games. The restaurants, clothing stores, business services center, accommodation services and many more need to be prepared well in advance for the influx of people by scheduling extra staff, ordering excess inventory and possibly changing their regular operating schedules.

For the City of Prince George

The number one long-term benefit to the City of Prince George is exposure. In theory, this exposure will show the city in a positive light across the nation. The location of Prince George in northern British Columbia makes

it difficult to travel through unless people are making their way to Alaska. The Games allows for exposure, showing the country some of the amenities available. Having seen the city in the news and on TV would make it easier for people to picture investing in or visiting the region.

4.12 Challenges the City of Prince George Will Face

The estimated number of people to flock to the city for nearly 3 weeks is over 10,000. The types of services that will feel the pressure of this sudden increase are police, health care and the service industry. From the moment people arrive at the airport or on city roads, wait times will increase, as most parts of the city are not designed for substantial numbers of people to arrive, stay and leave all at once. Even the single tourism office will be small for the amount of people seeking information from it. The policing service is a nationwide service that has handled many large events; therefore, it will likely absorb the increased population easily. However, the health-care system may find it more difficult. The 2006 census shows Prince George has 11% of the total experienced labour force over 15 years of age employed in health care and social services compared with the provincial average of 9%. Prince George is a hub to various parts of BC. Therefore, this system is near capacity, and the event may put a strain on services the community has regularly available.

The planning stages have shown a need to upgrade numerous facilities. The intention is that the citizens will reap the benefits of the improved facilities; however, they also shoulder some of the costs through taxation.

The games are currently years away, and the planning is in full swing with a full team of directors. The residents and businesses of Prince George need to take a moment to see how the games can or will impact their lives. Residents can enhance their games experiences by looking into volunteering and home-share opportunities. All local businesses wanting to be involved can look into sponsorship opportunities. Some businesses may possess skills that would be beneficial to the development and implementation of the games. A few examples of areas that will require specialized skills are communication technologies at the various venues, transportation services and equipment rentals. The success of the games depends largely on community and businesses support. As well, support from the city and the provincial and federal governments is key.

4.13 Long-Term and Unmeasurable Effects for Host Communities

The premise that this event will benefit the region positively is the purpose of hosting it. The benefits range from economic, to social, political and cultural (Blake and Li, Estimating Olympic-related Investment and Expenditure 2008). The direct economic effects are short term and will subside shortly after the event, while the indirect and induced effects may take more than a year to subside. The social, political and cultural effects may take much longer. A nation-wide stage is invaluable for an economy such as Prince George's, especially when smaller communities are more likely to make national news based on negative events such as explosions, murders and weather disasters; it is difficult to capture a nation-wide audience on a positive level for an extended period of time. The opportunity to develop interest in the

community based on the infrastructure and environment is difficult to encapsulate and quantify. Also difficult to measure is the benefit of the improved facilities. Some facilities may be upgraded through funds from government sources, but there are numerous facilities that raise funds from smaller organizations or clubs that use them. An example is ski hills developing specific slopes or runs for events at their own expense. They do this for the exposure and development of the sport, but it benefits the whole community. The development of this infrastructure may cause improved participation rates for sports within the community, which will likely affect the population's health rates positively. Improved access to more sports is good business for the community as a whole.

As western culture progresses and people become more mobile, the ideas of what makes a community change. Large community events are a great way to create or improve a sense of community. This is something that is difficult to quantify but is easy to identify in communities that have held successful past events.

Chapter 5
EMPIRICAL RESULTS

This chapter provides economic impact estimates for the 2015 Canada Winter Games to be held in Prince George, BC. The economic impact estimates are based on (a) the STEAM model and (b) the multiplier approach. This chapter is divided into two sections. Section 5.1 outlines the economic impact using the STEAM model. Section 5.2 outlines the estimated economic impact using the multiplier approach

5.1 Economic Impact – STEAM model

The STEAM model is fundamentally a black box; it allows for a variety of inputs based on the type of event and location. A sample STEAM-model inputs page for event participants is shown in Appendix 3. The inputs pages for other attendees are similar. Once all inputs are saved into the model, they are multiplied into standardized visitor-expenditure profiles that have been developed by the CSTA through visitor surveys at over 50 events. These expenditure amounts are not given; just the output is provided. STEAM incorporates expenditure inputs from the Canadian Tourism Resource Institute's (CTRI) Tourism Economic assessment model (TEAM) and information from Statistics Canada. The CTRI Team model uses 60 measures to calculate direct, indirect and induced impact, including employment,

compensation, and gross domestic product. The CTRI serves the travel and tourism industry in providing economic forecasts and models.

The results of the STEAM model show the total direct, indirect and induced impact for the Prince George region will be $102 million (Appendix 4). This is substantially higher than the early impact estimate of $70-90 million from an economic impact assessment commissioned by the bid committee. This output amount is a combination of visitor, operational and capital outputs. From appendix 5, visitor expense totals $8,499,123 based on average expenditure at similar events and the number of expected visitors. This $8.5 million will grow to over $12 million locally when one adds in indirect and induced impacts (Appendix 5). These numbers indicate that $1 invested by visitors can produce $0.41 more in the local economy ($12million/$8.5million=$1.41-$1). It is expected that 10,000 visitors will occupy hotels, motels, bed and breakfasts, as well as participating in home sharing. This may result in regular visitors to the city for business or other pleasures being crowded out. They will likely cancel or alter their plans due to the lack of rooms available. The crowding-out effect is not considered in the model.

The STEAM model is very large. Complex and individual coefficients and multipliers are unknown. The following is a breakdown of the employment aspect of the model because it differs from other parts of the model, as the impacts are calculated separately from the system of national account provincial input/output tables (Canadian Sport and Tourism

Association 2008). The only employment input into the model was the 80 full-time operations jobs (as seen below in table 5.1). (This table is extracted from Appendix 7, which shows the full STEAM operational output.)

Table 5.1– Operations economic impact of employment (Full-year jobs)

	Total British Columbia	Local Area- Prince George	Rest of British Columbia
Direct Impact	80.0	80.0	-
Indirect Impact	176.5	122.8	53.8
Induced Impact	101.2	65.9	35.3
Total Impact	357.7	268.7	89.1

Source: extracted from Appendix 7

Table 5.1 shows that according to this model, 80 operational jobs create an impact of 358 total jobs. This is using econometric estimates of a series of coefficients and rates from employment data for each region (Canadian Sport and Tourism Association 2008). While the input/output method is used in the model, it is useful to look at what the multiplier is: 80*X= 357.7, X=4.69, which is astonishingly high.

As indicated by table 5.2 (below), the overall employment impact is much higher, the result being 701 total full-year jobs. This number accounts for jobs created from visitor spending, operational and capital spending. There are not many standards for employment multipliers for this type of event, making it difficult to ascertain if an event with 80 discernible full-time

employees and 1 large capital project could create 701.2 full time jobs. This model is closed in that there are no published coefficients or rates given to the user. This makes it difficult to ascertain how many jobs are being created.

Table 5.2- Total economic impact employment (Full-year jobs)

	Total British Columbia	Local Area- Prince George	Rest of British Columbia
Direct Impact	235.1	235.1	-
Indirect Impact	275.5	169.0	106.6
Induced Impact	190.6	126.9	63.7
Total Impact	701.2	531.0	170.3

Source: extracted from Appendix 4

There are a few considerations regarding employment for a short-term event that need to be considered when analyzing data from any economic impact analysis. For a short-term event there will likely not be long-term jobs created. As well, most employment models assume that people within their jobs cannot handle an increase in customers or volume (Crompton, Economic Impact Studies: Instruments for Political Shenanigans? 2006). For example, local hotels may be able to absorb being at capacity for two weeks without hiring any new staff or even paying overtime. With more time and resources, all aspects of the model could be analyzed.

Other inputs such as the number of visitors and visitor spending are based on visitor surveys. If the past surveys are a good indicator of

prospective events, one can gauge how much each type of visitor spends. Therefore, the visitor outputs should be correctly calculated. The standardized model allows for governments to compare different event options and see how past events have affected economies. A concern with this model is that the coefficients are not published. With more resources, it would be beneficial to analyze the total outputs, including operational, capital and visitor spending, to determine if in fact this event could have an impact in the $90-110 million range. To do that, one would need information on the coefficients, various rates used, visitor surveys and other data employed to build the model.

5.2- Tourism Multiplier Analysis

As discussed in Chapter 2, income multiplier analysis is a popular method for conducting an economic impact study. The most challenging part is selecting a multiplier. Table 5.3 presents income multipliers for various regions around the world. Of note is the large variation depending on the economy.

Table 5.3 – Sample income multipliers

Country or Region	*Tourism* Income Multiplier
Ireland	1.776-1.906
United Kingdom	1.683-1.784
Dominica	1.20
Bermuda	1.10
Eastern Caribbean	1.07
Antigua	0.88
Missouri State	0.88
Antigua	0.87
The Bahamas	0.78

Walworth County, Wisconsin	0.78
Cayman Islands	0.65
Grand County, Colorado	0.60
Door County, Wisconsin	0.55
Sullivan County, Pennsylvania	0.44
Southwestern Wyoming	.389-.528
Gwyedd, North Wales	0.37
St. Andrew's, Scotland	0.34
South West England	.330-.47
Greater Tayside, Scotland	0.32
East Anglian Coast, Scotland	0.32
Isle of Skye, Scotland	.25-.41

(Horwath Tourism & Leisure Consulting 1981)

If we used the highest multiplier, Ireland at 1.906, and applied it to the $46 million the games was budgeting for the event, the total impact would be $89 million. This large variance in multipliers is rampant in economic impact studies, which makes choosing a multiplier difficult. This difficulty is inflated with this being an ex-ante study. The organizers have the ability to select from local suppliers, labourers or staff to improve the economic impact or use further away suppliers to lower the direct economic impact, thus affecting the income multiplier.

There are hundreds of published income multipliers, but none were found for this type of event and economy. The best attempt at a multiplier would be 1.15. This fits with the literature review of sport tourism multipliers falling between 1-2 and is a conservative estimate. This number was derived by averaging 10 of the multipliers from Table 5.3 that were from large enough economies that the ripple of the money flowed through the economy.

Appendix 8 shows the 10 selected economies and the average total. Using a multiple of 1.15 multiplied by the 2015, one can estimate that with a Canada Winter games budget of $46.5 million, the economic impact would be around $53 million.

Chapter 6
CONCLUSION

The present study examines the prospective impact of the 2015 Canada Winter Games in Prince George, BC.

The two major limitations of past sporting events have been the subsidy allotted to infrastructure that cannot be utilized efficiently and effectively by the host community after the event is complete and the danger of overestimating the value of hosting a large event. The main consideration for any community when deciding to host an event needs to be: is the investment into infrastructure worth the expense? For this event, the rebuild of one aged facility was a worthwhile investment and would have needed to be done regardless.

There were two methods used to calculate the economic impact this event will have on the Prince George economy. The first method used was the STEAM model, which is the most popular method in Canada, as it is required for government funding. This model generated an economic impact of $102 million based on the expected budget and expected visitor profiles. The major problem with this estimate is that the model co-efficients are unknown, and it is a black box that is not transparent. The second method, which is preferred in this study, is the multiplier method. This method is based on an income

multiplier of 1.15. When applied to the games budget of $46.5 million, it produced an economic impact of $53 million. There is considerable variation in the estimates generated by the STEAM model and the income multiplier approach.

It is unlikely that the direct economic impact will be felt beyond the initial event, but the event could improve the overall culture in the community with an increased sense of community pride or utility, improved sport infrastructure and improved participation rates as people are exposed to new sports they can participate in.

The City of Prince George's investment of over $18 million and the substitution effect of where it comes from are what taxpayers of Prince George have so far contributed. The investment of this money, combined with federal and provincial funding of the economy, means more jobs, nonmonetary impacts such as nationwide awareness for the community and more tax revenues. The argument has been made that numerous small events could have a large impact on the economy without the $18 million expense; however the small event helps to build individual sports, while this event aims to bring together an entire community. The positive economic impact, coupled with the social, political and cultural impacts, make this event a good fit for the community.

It is recommended that a post-economic impact study be completed with visitor surveys throughout the event so as to gain accurate expenditure

and visitor profiles. This will be useful in future decision making and to improve the accuracy of economic impact studies for sporting events in Canada.

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Appendix 1

Summary of Cultural and Sport Tourism National Economic Impacts by Origin, 2007 (Millions of Dollars)

	Type of Impact			
	Gross Domestic Product	Labour Income	Employment	Taxes
Cultural Tourism Impacts				
Canadian	$3,357.4	$2,152.3	71,788	$275.2
Foreign	$1,764.2	$1,128.3	38,702	$143.8
Total	$5,121.6	$3,280.6	110,490	$419.0
Sport Tourism Impacts				
Canadian	$1,061.1	$671.5	23,912	$84.5
Foreign	$193.5	$123.6	4,238	$15.3
Total	$1,254.6	$795.1	28,150	$99.8
Combined Cultural and Sport Tourism Impacts				
Canadian	$4,418.5	$2,823.1	95,700	$359.7
Foreign	$1,957.7	$1,251.9	42,940	$159.1
Total	$6,376.2	$4,075.7	138,640	$518.8

(The Outspan Group Inc 2009)

Appendix 2

National Economic Impacts Generated by Canadian Sport Tourists, 2007 (Millions of Dollars)

	Type of Impact			
	Gross Domestic Product	Labour Income	Employment	Taxes
Canada	$1,061.1	$671.5	23,912	$84.5
Newfoundland	$19.4	$12.6	460	$1.5
Prince Edward Island	$6.2	$4.1	169	$0.5
Nova Scotia	$33.2	$22.1	875	$2.6
New Brunswick	$30.5	$20.0	811	$2.5
Québec	$193.6	$125.3	4,581	$17.5
Ontario	$360.6	$230.4	7,929	$30.0
Manitoba	$51.2	$31.2	1,122	$4.1
Saskatchewan	$71.1	$42.9	1,794	$5.5
Alberta	$164.3	$96.7	3,321	$10.5
British Columbia	$131.0	$86.2	2,850	$9.8

(The Outspan Group Inc 2009)

Appendix 3

SAMPLE: Input sheet for STEAM model

British Columbia STEAM - Participant Input	
Number of unique out of town participants	
Percentage of out of town participants staying overnight (0-100)	00

Overnight participants (0-100)

% of overnight participants from Canada	00
% of overnight participants from U.S.	00
% of overnight participants from Overseas	00
Total (must sum to 100)	*100*

Overnight Domestic Distance (0-100)

% of Canadian participants travelling from out of town up to 320km, regardless of province of origin	00
% of Canadian participants travelling from more than 320km and the same province as the event	00
% of Canadian participants travelling from more than 320km and a different province as the event	00
Total (must sum to 100)	*100*

Average overnight length of stay	

Age of Participants (0-100)

% of participants under 19	00
% of participants 19-44	00
% of participants 45 and over	00
Total (must sum to 100)	*100*

% of partipants under 19 who are staying in commercial accommodation	0.0

Same Day participant

Average number of day trips taken by each participant	0.0

Appendix 4

Economic Impact Summary- Combined Total: British Columbia (Dollars)

	Total British Columbia	Local Area Prince George	Rest of British Columbia
Initial Expenditure	$73,890,371	$73,890,371	$0
Gross Domestic Product			
Direct Impact	$39,198,551	$39,198,551	$0
Indirect Impact	$23,770,640	$10,735,500	$13,035,139
Induced Impact	$16,036,093	$7,572,066	$8,464,026
Total Impact	$79,005,283	$57,506,118	$21,499,166
Wages & Salaries			
Direct Impact	$13,864,100	$13,864,100	$0
Indirect Impact	$15,111,109	$8,712,507	$6,398,602
Induced Impact	$9,891,837	$4,893,919	$4,997,917
Total Impact	$38,867,045	$27,470,525	$11,396,519
Employment (Full-year jobs)			
Direct Impact	235.1	235.1	-
Indirect Impact	275.5	169.0	106.6
Induced Impact	190.6	126.9	63.7
Total Impact	701.2	531.0	170.3
Direct Taxes			
Federal	$4,255,881	$4,255,881	$0
Provincial	$4,083,780	$4,083,780	$0
Municipal	$1,074,463	$1,074,463	$0
Total	$9,414,124	$9,414,124	$0
Total Taxes			
Federal	$11,718,836	$8,148,930	$3,569,906
Provincial	$9,240,996	$6,692,344	$2,548,652
Municipal	$2,901,965	$1,996,080	$905,884
Total	$23,861,797	$16,837,354	$7,024,442
Industry Output			
Direct & Indirect	$105,315,281	$87,446,876	$17,868,404
Induced Impact	$31,966,679	$15,092,379	$16,874,300
Total Impact	**$137,281,960**	**$102,539,255**	**$34,742,705**

Appendix 5

Economic Impact Summary - Visitor: British Columbia (Dollars)

	Total British Columbia	Local Area Prince George	Rest of British Columbia
Initial Expenditure	$8,499,123	$8,499,123	$0
Gross Domestic Product			
Direct Impact	$3,659,776	$3,659,776	$0
Indirect Impact	$2,889,175	$858,897	$2,030,278
Induced Impact	$2,480,022	$1,059,544	$1,420,478
Total Impact	$9,028,973	$5,578,218	$3,450,756
Wages & Salaries			
Direct Impact	$2,687,925	$2,687,925	$0
Indirect Impact	$1,711,467	$780,279	$931,188
Induced Impact	$1,550,926	$689,554	$861,371
Total Impact	$5,950,318	$4,157,758	$1,792,560
Employment (Full-year jobs)			
Direct Impact	71.5	71.5	-
Indirect Impact	28.7	13.3	15.3
Induced Impact	30.2	19.6	10.5
Total Impact	130.4	104.5	25.9
Direct Taxes			
Federal	$916,666	$916,666	$0
Provincial	$869,216	$869,216	$0
Municipal	$589,518	$589,518	$0
Total	$2,375,400	$2,375,400	$0
Total Taxes			
Federal	$1,941,061	$1,357,236	$583,825
Provincial	$1,593,167	$1,175,928	$417,240
Municipal	$836,164	$689,588	$146,576
Total	$4,370,392	$3,222,751	$1,147,641
Industry Output			
Direct & Indirect	$13,668,035	$10,035,743	$3,632,292
Induced Impact	$4,996,759	$2,134,773	$2,861,985
Total Impact	**$18,664,794**	**$12,170,517**	**$6,494,277**

Appendix 6

Economic Impact Summary - Capital: British Columbia (Dollars)

	Total British Columbia	Local Area Prince George	Rest of British Columbia
Initial Expenditure	$18,862,158	$18,862,158	$0
Gross Domestic Product			
Direct Impact	$7,482,287	$7,482,287	$0
Indirect Impact	$6,970,334	$2,984,744	$3,985,591
Induced Impact	$5,025,183	$2,299,795	$2,725,388
Total Impact	$19,477,805	$12,766,826	$6,710,979
Wages & Salaries			
Direct Impact	$5,501,903	$5,501,903	$0
Indirect Impact	$4,263,297	$1,961,470	$2,301,827
Induced Impact	$3,086,055	$1,464,416	$1,621,639
Total Impact	$12,851,255	$8,927,790	$3,923,466
Employment (Full-year jobs)			
Direct Impact	83.6	83.6	-
Indirect Impact	70.3	32.9	37.4
Induced Impact	59.3	41.4	17.9
Total Impact	213.1	157.8	55.3
Direct Taxes			
Federal	$1,340,020	$1,340,020	$0
Provincial	$2,030,760	$2,030,760	$0
Municipal	$257,974	$257,974	$0
Total	$3,628,753	$3,628,753	$0
Total Taxes			
Federal	$3,602,019	$2,386,212	$1,215,808
Provincial	$3,588,546	$2,747,078	$841,468
Municipal	$774,392	$493,532	$280,860
Total	$7,964,957	$5,626,821	$2,338,136
Industry Output			
Direct & Indirect	$33,559,645	$25,155,720	$8,403,925
Induced Impact	$9,973,165	$4,564,259	$5,408,906
Total Impact	**$43,532,810**	**$29,719,978**	**$13,812,831**

Appendix 7

Economic Impact Summary - Operations: British Columbia (Dollars)

	Total British Columbia	Local Area Prince George	Rest of British Columbia
Initial Expenditure	$46,529,090	$46,529,090	$0
Gross Domestic Product			
Direct Impact	$28,056,487	$28,056,487	$0
Indirect Impact	$13,911,131	$6,891,859	$7,019,271
Induced Impact	$8,530,888	$4,212,728	$4,318,160
Total Impact	$50,498,505	$39,161,074	$11,337,431
Wages & Salaries			
Direct Impact	$5,674,271	$5,674,271	$0
Indirect Impact	$9,136,345	$5,970,758	$3,165,587
Induced Impact	$5,254,856	$2,739,948	$2,514,907
Total Impact	$20,065,471	$14,384,978	$5,680,494
Employment (Full-year jobs)			
Direct Impact	80.0	80.0	-
Indirect Impact	176.5	122.8	53.8
Induced Impact	101.2	65.9	35.3
Total Impact	357.7	268.7	89.1
Direct Taxes			
Federal	$1,999,196	$1,999,196	$0
Provincial	$1,183,804	$1,183,804	$0
Municipal	$226,971	$226,971	$0
Total	$3,409,970	$3,409,970	$0
Total Taxes			
Federal	$6,175,756	$4,405,482	$1,770,274
Provincial	$4,059,284	$2,769,339	$1,289,945
Municipal	$1,291,408	$812,960	$478,448
Total	$11,526,447	$7,987,781	$3,538,666
Industry Output			
Direct & Indirect	$58,087,601	$52,255,413	$5,832,188
Induced Impact	$16,996,755	$8,393,347	$8,603,408
Total Impact	**$75,084,356**	**$60,648,760**	**$14,435,596**

Appendix 8

Multipliers used for averaging
(mid points were used for countries with a range)

Ireland	1.776-1.906	1.841
United Kingdom	1.683-1.784	1.7335
Dominica	1.20	1.20
Bermuda	1.10	1.10
Eastern Caribbean	1.07	1.07
Hong Kong	1.02	1.02
Hawaii	0.9-1.3	1.1
Missouri	0.88	0.88
Antigua	0.87	0.87
Fiji	0.69	0.69
Multiplier		**1.14975**

Sources:

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