Master Thesis

Location decisions in professional ice hockey

"Is the Greater Toronto/Southern Ontario region a viable market for National Hockey League relocation?"

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28-09-2007

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Preface

This paper is the result of a thesis research concluding the master Economic Geography at the Rijksuniversiteit Groningen. This research has been conducted at the State University of New York at Geneseo, thanks to the partnership the between the two respective spatial sciences faculties and adds an international dimension to my master thesis.

The research topic is franchise relocations in professional sports, and in particular in ice hockey. Being an avid hockey fan myself, this topic appeals to me. The phenomenon that hockey franchises could just move, and especially move from Canadian cities that breathe hockey, to Sunbelt cities has always fascinated me. By this research I was able to combine two passions; hockey and geography. While conducting my research I soon realized how complex and sometimes illogic geographical decisions made in the American sports industry are. It triggered me to continue my research with the same enthusiasm as when I started. Apart from remaining interested in this dynamic topic throughout the research, the actual research and its practical implementations caused a whole new learning experience as well. Concluding the entire thesis experience has been interesting and helpful in obtaining academic knowledge.

Even though the research was conducted abroad and regularly meetings with my advisor were not possible, I remained in contact by e-mail, and the cooperation was very pleasant and productive. Here by I would like to thank Mr. Paul van Steen for his time and effort in helping me throughout my research. Also my advisors at Geneseo, Mr. David Aagesen, Mr. David Robertsen and Mr. Chris Annala, all were very helpful and essential for completing my thesis.

Groningen, September 28th 2007

Jaïr de Paauw

Executive Summary

Canada is hockey country, and to their grief they see their best hockey players and even teams move to the United States. The Canadian hockey community feels that their sport is slowly being taken away. The sport does not get what it deserves in particularly the southern states where the teams do not attract many fans. Many feel that at least one NHL team should move back to Canada. This research is dedicated to see how realistic that option is. The economic and most urban core of Canada, Southern Ontario, is used as case study. Many feel that if Canada has a shot at landing a new National Hockey League franchise Southern Ontario, and Hamilton in particular, would be the best location.

Even though leagues and cities claim the opposite, academic theory on sports geography and sports economy suggests that the actual economic benefits, expressed in monetary means, are marginal. However, a major league team does boost civic pride and can function as a catalyst in urban development. The NHL has saturated their market by striving for geographical diversity and conquering non hockey markets. The results of these attempts to conquer new areas are often half empty arenas. The strategy the NHL asserts to move south can be challenged by looking for viable locations in Canada or other hockey markets. A major league needs a populous metropolitan core with a large hinterland for its franchise locations; Canada lacks these with the exception of the Southern Ontario.

This research tests Hamilton on the criteria which the NHL implements when allocating a new franchise either by expansion or relocation. Together with five other cities that have attempted to land a NHL franchise, Hamilton's locational chances as well as their relative chance compared to other case studies are presented.

By checking for correlation and running three regressions analyses, the relative importance of the different location variables are tested. Then the cities are ranked according to their score on the variables.

Despite having the largest hockey market as their hinterland, Hamilton does not rank as the premier location for NHL relocation. However, Hamilton, and the entire Southern Ontario region provide enough support to sustain a viable NHL franchise both economically as region specific. However, all six case studies do have several strong assets from which good argumentation for a viable franchise can be derived. In the

modern day a successful franchise is heavily dependant on strong ownership, a variable almost impossible to measure but yet decisive in allocating franchise locations.

This research does provide good reason why Hamilton should not be neglected by the NHL when allocating a new franchise and that it could be a valuable location to the NHL. Yet, it also points out, that the franchise allocating process is very complex, where intangibles such as ownership and their motivation for choosing a particular location are of equal importance to the NHL location criteria.

Concluding, the NHL's current geographical market strategy fails in some of the Sunbelt cities, while other cities are eagerly waiting to join the NHL. When the next relocation takes place, the NHL should consider their solid fan base in hockey communities and reward them with placing a NHL franchise in such a market in stead of adding another failing franchise in a non hockey market. Hamilton would be one of the premier candidates.

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1. Introduction

John Bale explained why sports and geography have so much in common by phrasing that sports are not only significant as 'representations' of places and as 'rituals and spectacles', but also as examples of 'disciplinary mechanisms'(Bale, 2003). Sports are sometimes deeply rooted into society and can have very strong regional characteristics in which people mirror their regional identity. The impact of a sports franchise grew from civic pride to local economic generators when professional sports were introduced; sports are business, and the city is likely to benefit from it.

The phenomena of ice hockey franchise relocations and expansion to new markets are based on economic reasoning such as large city dominance and the importance of profits. In addition there is also the presence of American control and ownership of the National Hockey League (NHL) which helps explain the location pattern. In 1917 all North American ice hockey teams were in Canada, currently the NHL has 30 teams, of which only six are located in Canada, more surprisingly is that the number of ice hockey teams in the warm weather states California, Arizona, Texas, Carolina, Tennessee and Florida outnumber the Canadian teams.

Canada is still recognized as hockey country, the sport is valued as national heritage, and is extremely popular on all levels by both participants as well as spectators. Canada has the most registered hockey players and the most hockey rinks in the world (IIHF).[1] And the vast majority of the players in the NHL are Canadian as well. The commercialization and the Americanization strikes many Canadians, as 'their' sport goes south, where not grass roots interest but the television revenues in the more densely populated USA are of greater locational significance for NHL teams. Even though ice hockey is considered one of the four major leagues in North America it is not nearly as successful as the other three major leagues; Major League baseball (MLB), National Basketball Association (NBA) and the National Football league (NFL). These 'Big four' leagues are multimillion dollar sports industries and geographically cover the entire continent. In economic numbers ice hockey trails the other three with distance. The other three sports are more popular and generate more income. Ice hockey is considered a regional, but moreover a Canadian sport, the traditional hockey markets are located in the great lakes regions and the North Eastern rustbelt. Even though the NHL has expanded and relocated to warm weather

[1] Appendix I IIHF survey of players 2005-2006

cities, the Sunbelt has not embraced the sport as their own yet. The NHL's geographical strategy to conquer new, non hockey markets not only failed to act in the best interest of the Canadian community, but has not been successful in many American locations.

Because professional sports in North America are a closed circuit, the leagues hold a monopoly with a fixed number of franchises. Due to this monopoly, cities are very eager to locate professional sports franchises in their municipality; the stadiums are often centerpieces for urban renewal programs to boost local economy. However, the most common reason is prestige, having a professional sports team looks well on a city's resume. It is a great marketing tool; a major league city has a major league team. Even though hockey is not the most popular and most successful league, it is a major league sport, and many non hockey markets in the United States are actively pursuing an NHL franchise.

Canadian cities would like to have a NHL franchise, but are too small to compete with large metropolitan areas in the United States. Even though ice hockey has a defined place in Canada, for professional sports the general idea is that Canada cannot sustain many teams. Of the six current franchises four are in small TV markets, only Toronto and Montréal are large enough as metropolitan areas to compete with American metropolitan areas. Therefore many think Canada's largest metropolitan area, Toronto, should be large enough to have more than one NHL franchise. It is the most populous region and has the highest growth perspective both in population as well as its economy. The Greater Toronto Area (GTA) itself holds 5.8 million people; the entire Golden Horseshoe region inhabits 8.6 million people and is expected to grow to 11.5 million people (Answers, 2007). Many Canadian hockey fans believe that, if New York City can sustain three NHL franchises, and sunny Los Angeles can sustain two, the largest hockey market, Southern Ontario, should be able to sustain another franchise.

2. Methodology

This research consists of two parts; a theoretical framework and an exploratory quantitative part. The first section describes the theory in sports economy and sports geography and narrows it down to both elements in professional hockey. The explorative part tries to answer the research question with information retrieved from the data.

2.1 Problem statement

The introduction described the present situation and gave reason to commence a research if Canada can sustain another market to reverse the current direction of relocation in the NHL. This research is dedicated to find an answer to the following question:

"Is the Toronto/Southern Ontario region a viable market for NHL relocation?"

In order to find a better understanding for the research topic and to come to a solidified answer to the research question the following sub questions are set:

1.) How has the NHL evolved spatially?
2.) What are the market characteristics of both the strong as well as the weak markets?
3. A) What are the requirements for a (successful) NHL market?
   B) How does the popularity of ice hockey in a region influence the market profile of franchise locations?
4. A) What are location options for an NHL team?
   B) Can the Greater Toronto Area sustain another franchise and how does it compare with the other locations?
   C) Is the Greater Toronto Area the only viable Canadian region for NHL relocation?
5.) Where in the Greater Toronto Area would be the best place for an NHL franchise?

By answering these sub questions the background and present situation in the complex framework of North American professional hockey will be understood. Once the situation is clarified, the elements of a successful franchise will become clear and the quantitative part of the research can allocate the importance of these variables.

The choice of data and the methods of using this data are based how league expansion

occurred in the past. When a franchise is relocated or the league expands, the league chooses the new location from of a group of candidates. Several cities actively attempted or were mentioned in landing an NHL franchise since the big westward expansion of the early and mid 1990's, but were not granted one. These cities were:

- Hamilton ON
- Hampton Roads VA
- Houston TX
- Kansas City MS,
- Las Vegas NV
- Oklahoma City OK
- Seattle WA.
- Quebec City, QB
- Winnipeg, MB

This research does not only strive to explain whether or not the Southern Ontario region is viable for another NHL franchise, but also seeks its chances compared with other candidates in getting awarded a NHL franchise. Therefore six case studies were taken from the cities listed above, Hampton Roads, Las Vegas and Quebec City were dropped for this research, they have never been considered as serious as the other cities. Hampton Roads lacks a city core, and NHL regulations on gambling prohibit Las Vegas thus far. While Quebec City, lacks an arena that meets NHL standards and has no intentions to build one.

For these six cases a group of eleven independent variables derived from the criteria the NHL uses in allocating new locations were checked for their correlation to form three categories. Each category defined a set of variables that represent a certain urban or regional aspect of a possible location and their importance for the survival of the NHL franchise. To calculate the importance of each variable for the franchise's successful existence a regression analysis was performed. Even though some variables were not normally distributed and the amount of cases was relatively small, the 30 NHL franchises, a regression analysis is robust enough to deal with these imperfections. The regression results should give an indication on the relative importance of the different location variables. The results from this regression only provide an assumption for a possible ranking in the different locations specific variables. The location specific variables are used as the independent variable in the regression and the team's success

indicators; team value, revenue and operating income are used as the dependent variables. Running a regression on these three variables provides three lists of variable rankings from which an assumption can be drawn which ones have a higher importance over the others.

Within each correlated category the cities were ranked 1 through 6, based on which city scores best on each variable. The three categories were again ranked 1 through 6 to determine the overall ranking on all variables and correlated groups. The regression is used to determine which category has the highest importance for a viable location.
Together with findings in literature and results from other publications the best possible location from the perspective of a stable franchise in a region where a major league ice hockey organization is a true asset, will tried to be sought.

2.2 Data Collection

Quantitative data on the cities were sought and found on reliable websites such as Statcan and the US census. The more hockey specific variables were found on websites specialized in gathering either stadium information or attendance numbers. Qualitative information was gathered from the websites of major American and Canadian news papers and news sites that publish a lot about sports and hockey in general. The data and theory combined provide enough information to answer the research question and the sub questions.

2.3 Chapter classification

To answer the sub questions and eventually the research question the following classification of chapters have been implemented. Chapter 3 through 5 narrows the theory down from global sports geography and sports economy of the North American situation of professional hockey. Chapter 6 determines the variables and their relative importance. Chapter 7 describes the locations chosen for this case study. Chapter 8 ranks the cases according to their scores on the variables to measure their potential. Chapter 9 focuses detailed on the Southern Ontario region as a single entity to answer the research question.

3. Sports Geography

3.1 Sports and Economic Geography.

3.1.1. Introduction

This part will discuss the various studies and publications that already have been written about sports geography and the relation of ice hockey with geography in particular. The first section will reflect on the general sports geography literature. The second part will elaborate on the situation in North America, where the study of sports geography focuses by large on the, in the United States, dominant sports baseball and football. The next chapter will describe the geographic literature about ice hockey and the origin and diffusion of hockey. Phenomena of expansion and relocation will be dealt with in chapter 5, the last chapter dealing with literature.

Geography plays an important role in sports, especially in professional sports. Professional sports have grown into a major economic activity, providing a study field for economic geographers. As an industry professional sport is rather unique, therefore it is best to refer to sports geography when dealing with the geographical interests of sports. Bale (2003) explained that sports geography is concerned with 1.) Sports activities in the world and how the spatial distribution of sport changed over time; 2.) The changing character of the sports landscape and the merging with the sports environment and 3.) The making of prescriptions for spatial and environmental change in the sports environment.

Even though sports are played worldwide, most sports carry images connected to specific regions and locations giving them a geographical identity. This can be caused due to climate conditions; for example, most sports played at the winter Olympics are usually connected with regions in the northern hemisphere; Ice hockey and African nations are not a common combination, the International Ice Hockey Federation (IIHF) has only one affiliate on the African continent (South Africa). Other sports have a national identity due to competitive successes; Soccer is believed to have been originated in the United Kingdom. Still, Brazil is known as a soccer country due to its many successes and production of many of the world's greatest players (Szymanski and Zimbalist, 2002).

3.1.2 Physical place

Place and professional sports come together at the venue. The present stadium does not

serve as just the home for a sports team. It functions as a centerpiece in urban development. Local governments are involved in planning, maintaining and financing venues, while the sports team operates as the main tenant, drawing publicity with its exposure. The choice for a stadium or arena location is a rational decision process. Place, space, people and environmental issues are factors that need to be considered carefully before deciding when, where and how a stadium or arena will be built. The study of geography is of great value in this process.

Connections between place and professional sports go deeper than the location where games are being played. Place influences the market from which revenues will be generated, and vice versa. A bigger market stimulates economic growth which, in theory, should lead to competitive success. Higher success rates on their part, lead to higher place demands to accommodate a successful team. Place also contributes to determining the identity of the sports franchise; links with the city and sports are a lot stronger than other entertainment facilities. Most theatres are just facilities where performing arts can be enjoyed as entertainment. A stadium has a regular tenant, the team, which plays there year after year. This builds up to a strong relation between a city's team and its residents. When the team achieves success, it is experienced as a success of the city and its people. Even though the composition of the team changes over the years, the team remains at the stadium, a theatre, however, cancels its shows after a while and begins a new show. People travel to the stadium to watch the team, where people travel to theatres to watch a specific play. The name of the place is usually in the sports team's name, and people often mention the city when referring to its sports franchise.

3.1.3 Place Marketing

Cities recognize the exposure of sports teams and their stadiums as a publicity tool for the city itself. Many local governments are involved in stadium planning, construction, financing and maintenance. As stadiums are not only used for sports, they are also used for conventions and concerts, making them multipurpose entertainment facilities; they draw different crowds to the city. A sports team only uses the stadium half the time during its season schedule, but the facility requires year round maintenance. Therefore, other events or sports can help to offset costs. Multifunctional stadiums are used as landmarks in place marketing, Danielson (1997) desrcibes that through design and purpose, stadiums can become a direct visual image of a city. Davies (2005) noted that stadiums are sometimes referred to as the cathedrals of the modern times; they can function as tourist attractions or create multiplier effects in the direct vicinity for the

hospitality, leisure and retail industries. While the main purpose of stadium developments has been to serve the sporting need, the function of the stadiums has been twofold; they act as economic catalysts for local development and social regeneration for the surrounding area.

Estimates of the actual economic growth stadiums and arenas generate are often incomparable. There are hardly any independent studies that show positive impact. Most studies are funded by cities or investors with an interest in the actual development and are biased. Cocco and Jones (1997) reported that most independent and objective studies conclude that the potential economic impact of professional sport franchises show that the benefits usually range from the meager to the illusionary. Many sports facilities and their events are presented as ways to create jobs and economic development or enhancing the quality of life; however their only tangible value may be a contribution to a degree of stabilization of economic activity in a downtown area relative to growth and decentralization patterns in a regional economy (Austrian and Rosentraub, 2002).

Reason for these critiques is that professional sports often amount to substitute spending for other entertainment services. If consumers do not spend their money on attending sports events they will spend it somewhere else in the local economy. Sports facilities do not have a measurable impact on a city's per capita income; money spent in a stadium is composed almost entirely of disposable income that would have been spent in the city in another way (Baade and Dye, 1990). Coates and Humphreys (2002) come to a similar conclusion; "direct spending on sports does not lead to additional earnings in other sectors of the economy like restaurants, bars and hotels. Instead spending on sports and spending in other related areas appear to be substitutes". Still cities rely on sports facilities for redevelopment strategies and marketing their city or region even though the above mentioned and numerous other independent analyses indicate that these structures and teams are not correlated with regional economic development (Austrian and Rosentraub, 2002). These findings are supported by Noll and Zimbalist (1997) and Quirk and Fort (1993).

It does not mean that stadiums are unnecessary or a burden on a city's civic and economic development. The economic benefits a stadium or arena brings to a city are measured in three categories:

1. *Direct economic activity*. The construction of the facility and the normal team operation are all direct economic activities caused by stadium development. When a stadium or arena gets built, construction workers and contractors need to be hired. The normal team operation includes the athletic staff, management, and people working at the stadium in maintenance and concessions. All these jobs evolve directly from the stadium or arena. A study by KPMG on the economic and fiscal impact to the location of a NHL franchise in Minnesota calculated that 884 full-time equivalent jobs in Minnesota, of which 368 in St Paul resulted from spending on arena renovation. These jobs would be realized in different sectors over the course of the 18-month construction period (Barton et al, 1996).

2. *Indirect economic activity*. Leisure and hospitality services like bars and restaurants in the vicinity of the sports facility are indirectly benefited by the government spending in the area. On game days these services generate more revenue because of the spectators at a game go eat and drink in these facilities.
   A study by Lavoie and Rodriguez (2005) showed that a change in the environment of major league teams had no statistically significant impact on the hotel occupancy rates of the concerned cities. Even if some specific and local evidence of the favorable economic impact of professional team sports can be found it does not mean it has an aggregate effect. When professional sports activity is suspended, it may be that consumers in the hinterland area of major league cities are spending their money closer to home instead of traveling to the big city. The media are another indirect activity: people have a high interest in professional sports and like to read about it and see it on TV. With a team in the region, local interest is high, thus media will spend extra attention to the team which requires people to bring that service. More people will be involved in covering the team in the various media causing a growth of jobs in the local media sector.

3. *New economic activity* is the only part that matters. The direct and indirect economic activities are usually substituted spending. If the stadium does not get built, construction workers will work on a different project, or people go to other bars. Their incomes will increase due to the stadium but are not their primary reason for existence. An investment of the size that involves arena or stadium construction should lead to substantial new economic activity that justifies subsidizing such a project. Most studies concluded that the new economic activity

is marginal. Direct new economic activity concerns the jobs at the stadium and franchise and the spending resulting from these new incomes. The players make the most money on a team, which in theory should bring high income households to the city; however, most of the players do not reside permanently at the location of their team and thus pay their taxes somewhere else. Other jobs created directly from the stadium development are the people working at the concession stands and other stadium personnel, however these are mostly low wage and part time jobs.

As stated earlier, sports have a special place in the people's psyche which has granted the sports industry with attention and publicity. People like to read about and watch professional sports. The sports section in news papers or on TV is usually larger than the actual growth beneficiaries: the business section. Sports are not a dominating industry in any city, yet it receives the kind of attention that one might expect to be lavished on major producers and employers. At the very least, the attention paid to sports far exceeds its importance (Euchner, 1993).

Many franchise owners think that cities are obligated in partial responsibility for the financing of the stadiums as cities are profiting from the exposure a successful team within their territory. Cities recognize this effect and do not want to be left out not having a major league sports franchise; a major league city has to have a major league team. The general consensus is that the existence of sports teams will lead to economic growth. However, despite that professional sports might function as entertainment for a company's employees, when corporations are looking into relocating, they look for the place with the best characteristics for making profit. Low property and income taxes are of far more importance to corporate management than the proximity to a major league team in deciding where to locate (Annala, 2007).

Geddert and Semple (1987) used the Central Place Theory of Walter Christaller to determine the service level of a city. Christaller stated that the spatial monopoly position of a central place with respect to the range of a service emanating from that center varies with the order of the service and the proximity of competing adjacent centers. The threshold of a service in terms of a size limit below which the provision of a service would not be viable. Only the largest center would have thresholds capable of supporting the highest order of services. A professional sport meets the criteria for having the highest order of service available and increases the service level of a city. Cities want to

provide the highest service possible, in modern times, places or entertainment like theaters, concert halls, museums and major league sports find central locations crucial to their survival. (Nelson, 2001).

Local governments are motivated by the following values to invest large spending on stadium construction:

1. The development value: the building of the stadium will work as a catalyst on the surrounding area.
2. External benefits: a sports team can stimulate civic pride. Even small values per person can be large values in the aggregate. If a local team's success makes one person spend 10 dollars more it does not matter. When every person in a metropolitan area of 1 million people spends 10 dollars extra is does make a significant difference (Annala, 2007).

Stadiums or sporting events such as the Olympics are not only triggers for regional development. Often they do boost regional pride. This could lead to a more positive attitude to areas that have a bad reputation. With the proximity of a sports venue with major league activities, people multiplier effects in the form of more visits to the area or even an increase in residential population, can emerge. If not that, the new sports venue is the stimulus for local development itself, and the improved infrastructure helps improving the area, generating civic pride, visibility and community identity (Davies, 2005).

3.1.4 Sports Economics

Throughout the years professional sports have changed from paying its players to stay loyal to the team and reaching competitive success to a multi-million dollar industry. Marketing has become such an essential part of selling the franchise to generate enough revenue to stay compatible with the other teams.

Income is generated through ticket sales which can be subdivided in regular attendance, luxury boxes and personal licensed seating (PLS). The latter two provide the largest portion of the revenue. Perhaps the most important part of a franchise deal is selling luxury boxes. Luxury suites are the driving force for arenas and stadiums in the 21st century. Banks can be hesitant to finance a facility based on the hope that when built 20,000 people will come. When presented a revenue stream from luxury suites, the banks are more willing to provide financing. (Virginian-Pilot, 1996).

A multiplier from increased attendance is the increase in concessions sales before, during and after the game; more fans will consume more concessions. Other sources of revenue are television and merchandising revenue. The television market has become crucial for a major league franchise; professional sports have been transformed by the entertainment industry's growth away from live audiences as the principal source of revenue to television and other sources of auxiliary income as key components of commercial viability (Gruneau and Whitson, 1993). All are dependant on a team's popularity, which in itself is dependant on recent and past competitive success. Other traditional factors that determine attendance rates are income per capita, population of a city, the timing of the game and team success (Paul, 2003).

3.2 Sports and Economic Geography in North America.

3.2.1 Introduction

The size and craziness for sports make the United States and Canada very interesting for academic literature about this topic. Academic literature feeds of the many relocations and expansion issues compared to stable franchise locations elsewhere.

Professional sports originated in the United States in the late 1800's when baseball clubs started to pay its players to get a successful team. Later other sports followed. American professional sports concentrate around the 'big four' major leagues which are; the Major League Baseball (MLB), the National Basketball Association (NBA), the National Football League (NFL) and the National Hockey League (NHL).
There is a gap in fan base, TV revenue and sponsorship between the first three and the NHL. Some argue that there is only a 'big three', identifying ice hockey as a Canadian sport and only a regional one in the United States. Other upcoming popular major sports leagues are the National Association for Stock Car Auto Racing (NASCAR) and the Major League Soccer (MLS) which popularity has increased considerably over the last few years (Sports Business Journal, 2007).

3.2.2 Market Definition

American major league sports markets function as closed monopolistic markets. The league has a fixed number of teams which outnumber the cities seeking professional sport franchises (Baade and Dye, 2001). Player distribution is centralized through the league, and fixed salary caps provide an equal distribution of quality players among the teams.

As comparison, European soccer has a free market approach. If a city wants a major league team, it is not limited by the league's fixed number. The franchise is therefore forced to achieve competitive success; an unsuccessful team relegates to lower divisions where there are fewer earnings in TV revenues, also ticket revenues will drop when relegated to a league with qualitative inferior teams (Szymanski and Zimbalist, 2005).

Major leagues recognize the importance of maintaining Christaller's threshold market potentials discussed on page 17 and grant each franchise a 50 mile radius exclusive territory for marketing tools. The league controls the fixed market granting market power to the league and its franchises. Huge compensatory payments are imposed in exchange for the rights to infringe upon this zone. Geddert and Semple (1987) made two modifications in order to apply central place theory concepts to the study of major league sports viability. The first relates to the fact that attendance at professional sporting events is a nonessential service, involving the expenditure of discretionary income by a minority of people. For such a discretionary service the supply need does not extend to everyone. Therefore, the boundaries of market areas are not necessary defined by boundaries of the adjacent market areas. Market areas for professional sports, then, except in areas of close proximity, are largely independent of one another, and will vary in size and shape, depending on the landscape. The second modification reflects the fact that geographical space is highly varied in contrast to the broad homogeneous plain envisioned by the theorists. Tastes and preferences for a discretionary product differ between regions and their central places. For example, whenever a metropolitan area population is used as a surrogate for determining the potential market for a service from a given center. Such a measure ignores the varying strengths of influence of a central place on its hinterland, the varying attractiveness of a particular service in a given area and in both cases the differing sizes of the hinterland.

The exclusive territories drive competitive imbalance; the teams in the largest population areas will generate more revenue than the ones in lesser populated areas, also this leaves many viable locations without a major league franchise. Major league sports franchises are subdivided in large market franchises (LMF) and small market franchises (SMF) based upon the size of the statistical metropolitan statistical area (MSA) of the city where the franchise plays its home games according to census divisions. Due to the fixed markets and exclusive territories a LMF has spatial monopoly power over a SMF.

The American City Business Journals devised a formula to capture future expansion or relocation possibilities in the four major leagues of professional sports plus the emerging Major League Soccer (MLS) allocating the best suitable metropolitan areas for future expansion and relocation in any of the five sports leagues in the United States. Also it allocated the most saturated metropolitan areas.[2] Markets were based on total personal income, the sum of all money earned by all residents of an area in a given year. Each area consists of an urban center and its surrounding region. Estimated team revenues and average ticket prices were used to calculate how much total personal income is needed to adequately support a team in each league. Then each area's available personal income was calculated by subtracting the income needed to support the market's existing teams. Market capacity ratings for every area were determined by using a 100-point scale. A score of 100 indicates that a market's income base is strong enough to support a team in a specific league. A lesser figure is a sign of insufficient available income. The study gave some interesting options for new team relocations and gave insight in which markets are saturated. The most suitable was the Los Angeles area, the country's second largest television market, for a NFL team. Los Angeles has two teams in every other sport, but lost NFL teams after Rams and Raiders moved away from the area in 1995. Los Angeles has enough surplus income to support seven NFL teams. The only American city that was viable for a NHL franchise was Hartford, Connecticut. However the methods used can be questioned as both the entire personal incomes as well as the entire population were used as variables, while no actual consumer market wanting the product professional ice hockey was allocated. (Bizjournals, 2007).

3.2.3 Stadium Location

The increasing suburbanization and car dependency of the United States in the post war period caused stadiums and arenas to move to the suburbs and periphery with cheap land and high accessibility instead of the central city where scarcity and low accessibility made the land expensive. Most stadiums and arenas built in that period do not meet present and future standards anymore; a reverse shift back to the central city becomes somewhat evident. Population in the central business district (CBD) decreased over the past years, leaving the CBD empty and deserted after business hours causing criminal activities to flourish. Large crowds in the CBD for night time entertainment such as theatres or sporting events, could upgrade the area in reputation, and perhaps have a spillover effect on the housing market. Urban locations for stadiums can be divided into;

[2] Appendix II A, B and C

the inner city stadiums as part of the CBD, and the suburban peripheral stadiums which are close to the predominantly white, upper-middleclass fan base and are accessible by car. Cities tend to prefer their major league facilities back in their core again, when stadiums are located in the CBD, prospects for prosperity are the greatest (Nelson, 2001).

Inner city stadiums are usually redevelopment generators. Chanayil (2002) noted that the most often cited stadium successes are not the cities that are considered cultural capitals. Chicago, Miami or Los Angeles are not generally mentioned as stadium success stories, but cities like Indianapolis, Baltimore, Cleveland, and Arlington. In such cities, where there are not as many leisure activities as in a cosmopolitan metropolis such as New York, attending a baseball game might be the most attractive entertainment option available. It is hard to imagine that being the case in New York where the overwhelming choice of other entertainment can cause lower attendance figures than expected.

Both Baltimore and Indianapolis are success stories often used to show the benefits of stadiums on local development. In Baltimore, Camden Yards, the baseball stadium of the Orioles, was the last piece of the puzzle in Baltimore inner city harbor redevelopment program. Critics say that the success of the harbor redevelopment would have been there even without the presence of the stadium. Indianapolis was the first city that actually used sports as the trigger for its inner city development. By luring the Baltimore Colts away from Baltimore and using the stadium as the centerpiece of its downtown revival it created economic growth in its CBD. Losing the Colts was the wake up call for Baltimore to grant the Orioles their stadium, avoiding the risk of losing another major league team (Euchner, 1993, Noll and Zimbalist 1997).

3.2.4 Costs and revenues

Since the major leagues are centrally led, most leagues work with centralized distribution of earnings as well. Revenues come from ticket sales, marketing sales and TV. National TV contracts are negotiated by the league and divided equally among the teams. The MLB, NASCAR, NBA and NFL have national TV contracts. The NHL is the only major league that has no large national television contract and local media revenue varies with the size of the local market (Cocco and Jones, 1997).

Most leagues apply gate revenue sharing which divides revenue from ticket sales among the home and visiting team. The ratio differs between the leagues. This way the more popular teams get their share for their contribution in filling the stadium. The part the

visiting team gets depends on the home-away ratio the major leagues apply in the revenues sharing system. The salary cap is another way to increase competitiveness and equal spending in professional sports. The salary cap limits the amount of money a team can spend on player salaries, either as a per player limit or a total limit for the team's roster. A salary cap and revenue sharing puts a floor on investor's risk because the expenditures are more controlled. Several sports leagues have made salary caps mandatory, both as a method of keeping overall costs down, and in order to balance the league so a wealthy team cannot become dominant simply by buying all the top players.

Attendance revenue plus accumulative revenue from other external sources like the playoffs give season revenue which, in conjunction with operating costs, both salary and non-salary add considering to profitability. When a team exceeds the maximum spending on salaries, the league surcharges a luxury tax to discourage exceeding the limit. The money from the luxury tax gets redistributed among the teams, aiming to create a speed bump on the highest payroll clubs. The New York Yankees, and pretty much all New York City teams, are notorious for their payroll spending. Their large market supplies enough income to overpay their players without losing money. It is doubtful if a luxury tax can stop them from overpaying their players, their income is high enough to afford paying the luxury tax (Annala, 2007).

3.2.5 Expansion and Relocation.

Expansion and especially relocation of sport franchises are typical American phenomena. In Europe, sport franchises are historically tied to their city, they are part of what identifies a city and unites its residents. American and Canadian sport franchises are footloose, the sports industry is more commercially orientated and shifts between locations in sports leagues are more common. Both expansions and relocation will be discussed in more detail in chapter four.

When a new team enters the league, an expansion fee has to be paid, which will be divided among the existing teams. The fees have changed over the years, and differ per league. Additionally the expansion fee varies by location; a larger city can afford to pay a higher entrance fee. The fee is determined by the current owners. The entrance fee is partly a compensation for loss of revenues; national TV deals will be shared among more teams, thus the per team TV revenue decreases. In the beginning the league generally does not allow new teams to share in the national media contracts for a number of years. If a new franchise expands or relocates within 50 mile exclusive radius of an existing

team, a territorial fee will be paid to the existing franchise in that location. The territorial fee will be determined by the league with the consult from the existing franchise (Annala, 2007).

The local revenues for existing teams will decline with less competitive expansion teams. Newer teams are not as competitive as the existing teams; the groups of players have not worked together successfully and functioned as a team. As an opponent an expansion team does not attract the same size crowds to the stadiums as exiting teams. An existing team or better yet a rival as opponent draws more people to the stadium as these teams are more usually of better quality and bring their own fans to the stadium. In general, the new expansion or relocated franchise does generate enough attendance at home games. The local media and consumers are interested in the team, especially when a big team comes to town. The 'buzz' around the new team attracts people to the stadium. This 'honeymoon effect' lasts about five years, when the 'new' has dragged of the team, attendance slips. Competitive success can prevent this; people like winners, and winners draw attendance (Leadley and Zygmont, 2006). The league strives for viable cities to relocate or expand to viable cities represent credible threat locations. These 'open' locations are of strategic importance for the league in city-team negotiations.

3.2.6 Rival Leagues

Rival leagues have put more pressure on the major leagues to expand to rapidly growing markets. If the major league will not do it, rival leagues might appear in those abandoned markets. In the past rival leagues seized opportunities in establishing professional sports leagues with rapidly growing cities that lacked a major league sports team as their locations.

A rival league functions parallel to a major league, although it does not have the status of a major league, it can become a serious competitor or even a threat to the existing leagues. A rival league locates its teams in major cities lacking a franchise in a major league or in a market that is large enough to have more than one franchise in a particular major league. Due to the fixed leagues system teams cannot promote or relegate between leagues. Cities without a major league team and enough population to support will get an franchise in a rival league as the second best thing, having a couple of these cities can make a rival league successful. Especially fast growing cities that are not covered yet by the major league are prime locations for a rival league. The large potential fan base is sustainable for enough revenue to compete in salaries and other spending with the

existing major leagues. These cities are willing to join a rival league as the second best thing. A powerful rival league can actually lure star players, who give a great boost in attendances, away from the existing leagues. By that time a rival league has become a serious threat and the major league will have to respond by either adding new cities or merge with the rival league. Despite several successes, a rival league never succeeded in overthrowing the major league as the primary professional sports league, at their prime rival leagues have either merged with the major league or folded.

3.2.7 Chapter Summary

This chapter dealt with professional sports and the geography with a special consideration for the North American landscape. A sports franchise is connected with location through the stadium. The stadium has outgrown its original purpose of the home venue of a particular team, and has become an important tool for place marketing and city exposure. Despite often being presented as generators for a local economy, theories suggest that a sports franchise contributes marginally to a city's economy. Most revenue is generated from substitute spending that would have been spent in the city through other sources anyway. The cost for hosting a franchise are large in the form of stadium construction and maintenance, still in people's minds a professional sports franchise is necessary for complementing a city's service level to metropolitan standards. The rational idea that it only contributes marginally becomes of lesser importance. Economic benefits are measured by:

1. Direct economic activity
2. Indirect economic activity
3. New economic activity

The North American monopolistic system for professional sports strengthens leagues in their bargaining power; there are more viable cities than there are franchises. Therefore cities keep fighting over franchise relocations. The league allocates markets using a minimal 50-mile market radius. This division of allocating cities has lead to large and small market franchises where the large market franchises are guaranteed a higher income due to their monopoly in a denser populated region. Metropolitan status by population rank has been used as the most important criterion for allocating franchises, although there are other factors involved in making a franchise stable. Cities use stadiums and arenas as flagships in urban (re)development programs and are willing to invest in attracting a franchise to their municipality.

4. The spatial evolution of the National Hockey League

4.1 Hockey Country

Geographically the NHL is the most concentrated league of the four major leagues. In most of the United States, hockey is still seen as a regional, but above all, a Canadian sport. Hockey has long been a regional sport in the United States, limited largely to the northeastern seaboard and the industrial centers around the Great Lakes. In this context the NHL has always been a peripheral major league in contrast to the other three. Traditional hockey markets are often referred as hockey country, which is the geographic region of North America, and in particular the United States in which ice hockey has the strongest fan base. The region produces the vast majority of North American-born players of professional ice hockey National Hockey League level. Hockey country mainly consists of areas of North America in which the climate is cold enough that the game can be played. This includes the entirety of Canada, where hockey is immensely popular and is the national sport. In the United States, the sport's popularity is mostly concentrated in New England, the Upper Midwest and the Mid-Atlantic states New York, New Jersey, and Pennsylvania. Figure 4.1 shows the area labeled as hockey country. In all these states, hockey enjoys great popularity, and most minor and junior league teams can be found here (Gruneau and Whitson, 1993).

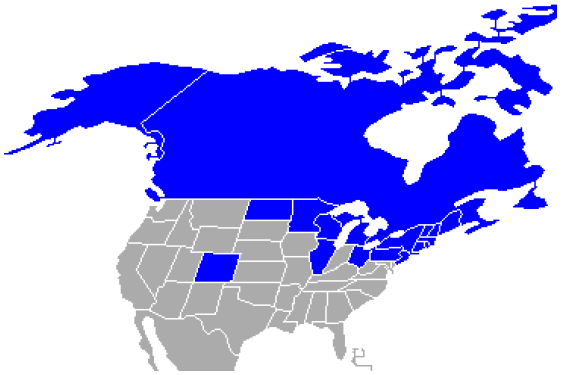

Figure 4.1: Map of the approximate area considered Hockey Country. Source: wikipedia.com

4.2 The birth of Professional Ice Hockey.

Professional ice hockey started in Canada where teams would compete for the Stanley Cup. In 1917 the National Hockey League was founded after disputes between the some teams and the National Hockey Association. In 1924 the NHL first crossed borders adding teams in the United States; the Boston Bruins were the first American hockey team in the National Hockey League. After a series of relocation of teams in 1946 the

National Hockey League consisted of six teams: Toronto Maple Leafs, Montreal Canadiens, Boston Bruins, Detroit Red Wings, New York Rangers and the Chicago Blackhawks. These teams still exist and are referred to as the original six. In 1967 the NHL first expanded to avoid losing markets to the upcoming rival Western Hockey League. The NHL expanded to 12 teams, still mainly in the northeast and Midwest, Los Angeles and San Francisco were the two western frontiers. The other four teams were Pittsburgh, Philadelphia, St Louis and Minnesota. Two more teams were added in 1970, Vancouver and Buffalo who both made strong bids in the first expansion but missed out, were granted entrance eventually. In 1972 the World Hockey Association, which resulted from the Western Hockey League, caused the NHL to expand with more teams. In 1979 the top four teams of the WHA merged with the NHL. Still the league was predominantly based in northern United States and in Canada. In a growth spurt in the 1990's, the league added nine franchises in 9 years. Today the NHL holds 30 franchises, of which 24 in the United States and 6 in Canada. Figure 4.2 shows the current geographical composure of the NHL.

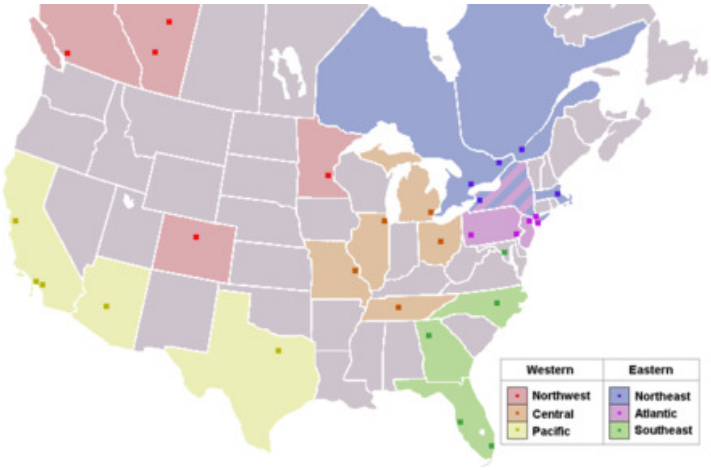

Figure 4.2: Map of the NHL 2006/07 season. Source: wikipedia.com

The league is divided into two conferences, the eastern and the western conference. Both conferences are subdivided into 3 geographical divisions. The schedule is such that teams from the same division play each other 8 times, and other conference teams 4 teams. This way the NHL stimulates regional rivalries as playoff berths are divided among the divisions. The playoffs lead to a championship of both conferences and both conference champions will eventually play for the Stanley Cup, the biggest prize in professional hockey

4.3 Minor Leagues

Beneath the NHL there is a hierarchical layout of minor hockey leagues. These minor leagues function as farm leagues for the NHL. Newly drafted players can ripe in these leagues, as well as experiments in rulings and new material will be tried out first in the minor leagues before applying them in the NHL. The most important league is the American Hockey League (AHL) with teams based in eastern Canada and the northeast of the United States. The AHL is the primary farm league for future NHL players, all NHL teams have affiliates in the AHL where they send and recall drafted players. Other minor leagues are the East Coast Hockey League (ECHL), United Hockey League (UHL), Central Hockey League (CHL) and the Southern Professional Hockey League (SPHL). Most teams in these leagues are based in the Northeast, and Midwest of the US and in Canada, with of the exception the two least important minor leagues the CHL and the SPHL. Then there are three major junior leagues; the Ontario Hockey League (OHL), the Quebec Major Junior Hockey League (QMJHL) and the Western Hockey League (WHL). All are in Canada with the WHL having a few teams in Washington and Oregon. Players aged 16-18 play in these leagues before they make the jump to a minor or major professional league.

4.4 The Lockout

The 2004-2005 NHL season was cancelled because of collective bargaining agreement negotiations that failed. Eventually the union and the owners did reach an agreement on a $39 million salary cap per team. Despite an entire season without NHL hockey the economic impact on league cities was not great, fans redirected their spending from attending to other forms of entertainment. The season after the lockout meant a revival for the NHL, rule changes were implemented to make the game more attractive and less violent. Also the new collective agreement made gate revenue sharing possible. In the NHL 90 percent of all revenues go to the home team and the other 10 percent goes to the visiting team (Staudohar, 2005). The introduction of gate sharing showed that especially small market teams benefit from the revenue sharing. Eleven low-revenue NHL teams received more than $90 million in revenue sharing payments, the proceeds came from the ten teams with the highest revenue and from a portion of playoff gate receipts. The only reason why teams like the Buffalo Sabres, Pittsburgh Penguins, San Jose Sharks and Washington Capitals posted profits that season was because of the money they received from revenue-sharing (Forbes, 2007).

5. League Expansion and Franchise Relocation in the USA and Canada

5.1 Introduction

Expansions and relocations make the North American major leagues interesting for geographers. The ongoing process of changing franchise locations are of great influence to a local economy, whether it is actual growth or just civic rejuvenation. NHL locations for expansion and relocation are chosen by the following criteria:

- Market size, based on the population of the metropolitan area.
- TV Market, the number of TV households per designated market area
- Ownership group, that has to be reliable and have the right intentions and the best interests for the league and the franchise.
- Sports competition on major league level in the MSA.
- Demographics, measured in the per capita income of the MSA.
- Corporate support, which is needed for investment and purchase of luxury suites and personal licensed seating. A franchise location needs a sounds base of large corporations in the MSA.
- Arena, currently new NHL arenas should have a minimum capacity of 17,500, although there are current NHL teams with a lower capacity but these entered the NHL when the minimum capacity was lower.
- Hockey interest, which is hard to measure. Previous success of hockey franchises and local support for minor hockey are taken as measurements for hockey interest. (The Virginian Pilot, 1997)

5.2 Expansion.

Expansion results from market growth. When population and wealth increase, opportunities for more teams in a league become valid. The expansion of sports teams in the United States and Canada followed the trend of its urban expansion westwards, and later to the Sun Belt. In the second half of the twentieth century, expansion had been the most common path for cities to obtain a major league franchise. The addition of new teams was primarily driven by the forces of urban growth and by the continuing need for major leagues to place teams in key markets. Expansion poses fewer emotional and political perils for major league sports than relocation; it does not leave abandoned cities, stadiums and arenas (Danielson 1997). The league decides on expansion and by how many. Cities that are interested in obtaining a major league franchise can make their bids for the new expansion team.

The new franchise will have to pay the league an entrance fee. These fees differ among the four major leagues.

Expansion fees:

NFL	$140 million
MLB	$130 million
NBA	$125 million
NHL	$ 51 million

Source: Danielson, 1997

Especially in the beginning professional sports leagues were unstable and relocated a lot, teams sought for the best markets which were often in the more populated places. Population size is used to determine the size of the market, the entire population of the statistical metropolitan area (SMA) is taken as the market, while it can be assumed that different portions of such a population will not be consumers of professional sports facilities. A large population base does not automatically mean enough support for financial success. The financial success of a league is dependant on developing and retaining fan interest. This is dependant on geographic diversity and franchise stability. Geographic diversity strives for games being played throughout the country. If games were only located in a specific area, fans outside the region would eventually lose interest. Success depends on fan interest, thus the league attempts to ensure that the largest population bases have access to professional sports (Fisher et al, 2000). A stable franchise generates a sound and loyal fan base. If teams move frequently, it may be harder to generate fan interest, since fans may feel that the team will soon leave. Carlton et al (2004) reported that solid groups of regular fans make a franchise more attractive for advertising and other investments. Another surplus of franchise stability is a local rivalry which results from many years of competition, fan commitment and marketing investments. Relocations destroy rivalries and undermine fan interest. Relocating into an area with an existing team could result in a rivalry. However, it will take time and success in order for the fans to adopt the new team, and trade their former team in. The example of the Los Angeles Clippers that will be discussed on page 32 illustrates the difficulties when a team relocates to a taken market. Without competitive success it is hard to attract fans that already have a team. Only large markets with over 10 million people are hosting more than one franchise in the same league; New York City, Los Angeles and Chicago. Other SMA that have more than one team in the same league are the San Francisco Bay Area and Washington- Baltimore, but these teams are located in different cities.

5.3 Relocation

Franchise relocations are more problematic than league expansions because there are winners and losers. The winner is the city where the franchises will move to, the former host city is considered the loser as it is left with an empty stadium and many disappointed residents who will blame local government for losing the team. These political motivations can strengthen local governments in keeping the franchise, the disappointed fans will not re-elect the mayor who caused their favorite team to move.

Competitive success on the short term can be achieved by relocating a team, the build up process can be skipped. The team already exists, thus the franchise does not have to hire complete staff and management and a complete roster of athletes, they move along with the franchise. An expansion team has to hire a complete roster, a management team and other personnel in a short period of time to get ready for their first season. Relocation can result from an improper facility at home or the desire for a better facility. The quantity of the personal licensed seating and luxury boxes are the most common reasons for a new stadium or arena. With lack of sufficient personal licensed seating and luxury suits, stadium investment do not offer investors any interesting economic investment returns and competitive success cannot be achieved.

Relocating to a city that will supply funds for a new arena is often used to put more pressure on the current city in persuading them to invest in a new facility. In North American major sports leagues, team relocation is a long standing response to either better profit opportunities emerging elsewhere or the fact that teams cannot profitably exist in current locations (Cocco and Jones, 2002). When a city decides to subsidize the new facility for either positive externalities or political motivations it leads to a debate where the spending are generated from. The merits for stadium investment versus funding other public services are relative. Therefore, it is best to fund stadium construction with new spending so other public expenses will not be cut by the stadium investment.

League monopoly causes serious threats to a city of losing its major league franchise. When the investments are not granted, another city probably will, and the team relocates when the league approves the relocation. A move will be rejected only if it is expected to be unprofitable to the league as a whole. The most important external effect of a franchise transfer is the reduced away attendance for the moving franchise. Carlton et al. (2004)

illustrated this in the rivalry effect: If a team has a regional rivalry, fans will show up at the games between the two teams partly due to the built up rivalry. When one team relocates, the rivalry disappears, when the two teams play again in the city of the franchise that has not moved, the possibility exists that initially attendance at these games will drop. Because costs of sporting events are largely fixed, even a small drop in attendance can significantly reduce profits. In such a case the league will not agree with the relocation.

Local governments are not the only investors in a franchise relocation or expansion. The stadium, infrastructure, safety are provided (partially) by the local government, while managing the franchise is a private investor's expense, league by-laws prohibit public ownership of major league teams. Only the NFL's Green Bay packers are exempt to this rule, yet other major league teams are directly owned by publicly traded companies. Cities and franchise owners can agree on cost reductions like property tax exemption or low rent leases, which are indirect ways of city funding towards the owners.

Major leagues seek to cover the geographical surface as efficiently as possible but too many relocations are signs of instability. A proper balance between geographic diversity and franchise stability must be sought to result in a successful relocation.

5.4 Market Sharing

Los Angeles is the second biggest TV market in the United States and is big enough for more than one franchise in any major league sport. Los Angeles has two NBA franchises, the Lakers and the Clippers both play in the same venue; the Staples center in downtown Los Angeles, covering the exact same market area. This market area is not equally divided between the two teams, the Los Angeles Clippers never have, and probably never will be the city's most popular team due to lack of similar success and above all lesser affiliation with the city. Even though both teams result from relocation, the Lakers were there first, making them the city team with the longer history. This 'Clippers syndrome' is common for teams sharing the same market. Only one team can be the city's number one team, usually this is the most successful one, or the one with the strongest historical ties to the city. In the other statistical metropolitan area that has two NBA franchises; New York City, the teams are geographically split. One team in the city, the New York Knicks, and the other in East Rutherford, NJ, where the New Jersey Nets play their home games. New York City's geography with its many water barriers splits up the market in different segments. The Knicks are the city team, while the Nets focus on suburban New

Jersey. There are plans for a new basketball-only stadium in Brooklyn; this will only shift their market from the western suburbs to the eastern suburbs on Long Island. New York City is large enough to have more than one, possible more than two franchises in ever major league. It has the most major league franchises (9) of all SMA (Danielson, 1997). Its geographical barriers function as territorial market boundaries. Despite the set markets and the presence of the New Jersey Nets, the Knicks do consider the entire New York SMA their market due to their history, success in the past and the central location in Manhattan.

5.5 Free Riding

Relocation can also take place within the SMA, when teams move to the peripheral suburbs where the fan base and television market are the same. They retain the fan base and often use the metropolitan name, but they are located in a different state and get regional benefits of this location. For example, both the New York Giants and Jets play their home game in East Rutherford, New Jersey, but are considered New York teams. Especially the large SMA encounter this problem, in cities like Washington D.C. and New York City where the suburbs lay in another state local and state tax revenues will be lost. These suburban cities use their proximity in luring a major league franchises to their towns. If a stadium attracts non state residents to games, the host state's wealth increases, but then so does the SMA share of wealth (Nelson, 2001). The out of state suburban towns will increase in wealth if they would have a stadium or arena for the metropolitan team.

5.6 Antitrust Law

In 1982 the Oakland Raiders moved from Oakland to Los Angeles. The team owner could not get the necessary stadium improvements in Oakland and moved to the bigger Los Angeles market with a stadium management, the Los Angeles Coliseum that did meet his demands. The NFL owners objected the relocation, and the Los Angeles Coliseum and the Raiders filed an antitrust lawsuit. The Sherman antitrust act was the first United States federal government action to limit monopolies. The court ruled in favor of the Raiders' move. The ruling set the legal tone for the antitrust debate over the relocation of sport franchises. According to Lehn and Sykuta (1997), it failed in two respects: 1.) The court failed to properly distinguish between the cooperation that it is necessary to promote the value of the league as a whole and the ability of teams to compete in input markets. 2.) It failed to recognize that territorial restrictions promote incentives for individual franchises to invest in product quality and reputation of the

franchisor: the League. Member franchises are not economic competitors in the relevant market, although they may compete economically to a greater or lesser degree in some other market. Presumably, such margins of competition might include competition for a common base of fans and live ticket receipts when two teams are located in the same geographic region.

5.7 Expansion in the National Hockey League.

Although having its origin in Canada, the NHL soon moved to the bigger cities in the United States. When the NHL became somewhat stable in 1925, the league was composed of six teams; it remained a league of six teams until 1967. In that year the first expansion in the NHL occurred, doubling its size to twelve teams. The NHL's expansion strategy of the 1960's, which placed franchises in Los Angeles, St Louis, Atlanta and Oakland, cities that NHL president Clarence Campbell described as having 'major-league' status, was intended precisely to break hockey out of its traditional heartland. The other two expansion teams were the hockey markets Pittsburgh and Philadelphia (Gruneau and Whitson, 1993).

The Atlanta and Oakland franchises moved back to traditional hockey markets while St Louis was close to relocation in 1983. Only Los Angeles, due to its size, Pittsburgh and Philadelphia remained in their original market. The Oakland franchise never became successful. Investors tried to relocate the franchise to Vancouver, but the NHL, in particularly Montreal and Toronto, objected the move. Montréal and Toronto did not want to share the Canadian television market revenue with a third team.

During the 1970's the World Hockey Association (WHA), grew as a rival league, having teams in cities not covered yet by the NHL. The WHA, which started in 1972, put pressure on the NHL to expand. The WHA benefited from the abolishment of the reserve clause in its contracts, and it did not recognize the reserve clauses in NHL contracts. As many players employed by the NHL were set to have their contracts expire in 1972, many would try to defect to the WHA as a negotiation tool with their teams, or consider offers to play for the fledgling league before looking to new NHL contracts. The NHL did nothing, believing the WHA would fold before their first season. The WHA wanted a second professional ice hockey team in the New York City area, and projected Long Island as the location. Nassau County ruled that the Nassau Coliseum would only allow major league sports and considered the WHA not as a major league. When it was apparent that the WHA would play, the NHL responded by adding the New York

Islanders and Atlanta Flames to forestall WHA franchises in new arenas just opened in both cities. The Islanders had to pay the New York Rangers a $ 4 million territorial fee for entering their market. The south was not ready yet for hockey and the Atlanta Flames moved to Calgary in 1980. The WHA continued without the New York franchise, and became very successful. O'Connell (1998) points out that the twelve original WHA cities helped bringing the sport of hockey to cities never considered yet by the NHL, such as Phoenix, Houston and Denver. Eventually the WHA folded, but the four most successful franchises, Edmonton, Hartford, Quebec and Winnipeg were allowed entrance to the NHL.

The next big expansion drift in the NHL was in the 1990's. The NHL copied the NBA's successful expansion to the Southern and Western sunshine states. Many people moved to the warm weather cities, including Canadians and other people from traditional hockey markets. Between 1991 and 2000 the NHL added nine teams to a total of thirty, only two went to hockey markets; Minnesota and Ottawa. The Los Angeles area added another NHL team, the Mighty Ducks of Anaheim, who had to pay the Los Angeles Kings a $ 25 million territorial fee. In the history of the NHL a territorial fee had to be paid only three times. The New Jersey Devils franchise had to pay both the New York Rangers and the Philadelphia Flyers $4 million each in 1981. The two Los Angeles NHL teams resemble the Clippers situation. However, unlike the Lakers and the Clippers the two NHL franchises in Los Angeles do not share a facility and have two distinct markets. The Kings' market covers Los Angeles, while the Ducks' market covers suburban Orange County. Next to that they both have overlapping markets in the greater Los Angeles-Anaheim metropolitan area; however the SMA is large enough for sustaining two teams in the same league. The New York's NHL situation is similar; each team covers a specific geographical landscape within the New York SMA. Both examples show that despite having more than one franchise in the same city, relocation and expansion teams can function successfully next to each other, as long as the regional geography is taken into consideration.

It is unlikely that a new city will enter the NHL by an expansion team, according to Staudohar (2005): "the NHL has saturated its market through its big expansion woes. In the recent past, four teams – Buffalo, Los Angeles, Ottawa and Pittsburgh- were saved from bankruptcy by new owners or internal financing. Overexpansion and flagging popularity have left several southern clubs (Anaheim, Atlanta, Carolina, Florida, Nashville and Phoenix), vulnerable to bankruptcy or purchase at fire-sale prices."

Staudohar even suggests the elimination of some of these teams, located in the Sunbelt States where hockey is not a traditional sport, to place the league on a sounder financial footing and improve the overall quality of play.

5.8 Relocation in the National Hockey League

Next to the additions of teams through expansion, many teams moved away from unstable and unsuccessful markets. Edmonton is the only WHA franchise still present at its original location. The former WHA teams were successful in their own small markets and had regular sellouts. However, the television markets for cities like Hartford, Quebec and Winnipeg were considered too small. Geddert and Semple (1987) located the problem the NHL asserts in the inherent financial vulnerability of 'small markets' and its resolution lies in arena construction to produce new sources of revenue and cost containment in the form of a 'salary cap' plus other restrictions on competition in the market for player services. No credence is given to the consideration that these teams might be profitable, but are intent on moving to even more profitable locations. When the NHL locates a new franchise, it places a high priority on the short-term goals of establishing a national presence, developing new regional interests and maximizing market share of sports revenues rather than long-run goals of maximizing league or individual franchise profitability. This happened during the big expansion to the south. All the new clubs in the 1990's, mostly from Sunbelt cities, paid 50-70 million entry fees to the league, which lead to short-term rewards. But the novelty of the game has worn off in those cities, diminishing attendance and profits (Staudohar, 2005). In 1982 the New Jersey Devils arrived from Colorado due to lack of success. The Colorado Rockies franchise already had been relocated to Denver from Kansas City where it did not even last two seasons. In 1995 Quebec could not agree with the city on a new arena and moved to Denver. As they already were quite competitive in Quebec, the new franchise, the Colorado Avalanche won the Stanley Cup in its first Colorado year strengthening the honeymoon effect. Many Quebecois believe that Colorado never would have won the Stanley Cup if the franchise had not been in Quebec (Gruneau and Wilson, 1993).[3] In

[3] Because of Quebec's French-Canadian heritage, many English speaking Canadian hockey players refused to play for the Quebec Nordiques. The infamous Lindros-trade laid the foundation for the 1995 championship team. The Nordiques no 1 draft pick, Eric Lindros, refused to play in Quebec was traded for seven other players plus cash payments. This trade and other trades with similar reasons made the Nordiques/Avalanche franchise a powerful team with a lot of talent and money, which resulted in the 1995 Stanley Cup, their first year in Denver, CO.

1996 the Winnipeg Jets moved to Phoenix as this emerging market was desperate for a NHL franchise to become a grand slam city; having all four major leagues.

In 1997 the Hartford Whalers moved to Raleigh, North Carolina, in one of the strangest franchise shifts. The Hartford Whalers organization preferred a single market where it had monopoly power. Hartford offered a wide-open market with twice the needed income to maintain a team and is located between two of the biggest TV markets, Boston and New York, while the Carolina Hurricanes typically languish near the bottom of the attendance rankings. The decision to move was made before a new location was found, which was justified by the monopoly status of the league (Bizjournals, 2007).

In general, big city teams would be more likely to survive and be profitable and their smaller city counterparts would tend to be abandoned or moved frequently. These findings were supported for baseball, football and basketball, but not for hockey (El Hodiri and Quirk, 1974). The NHL always had a large portion of small market franchises compared to the other major leagues. This is partly due to the Canadian heritage of hockey which strengthens Canadian cities in obtaining and maintaining an NHL franchise. However Canadian small market franchises (SMF) are endangered species; they are at a revenue disadvantage due to the quality of their locations. A condition further exacerbated by relatively poor non-attendance revenue; and their ability to service operating expenses is constrained both by escalating salary and non-salary costs. The end result is that profitability, the franchise viability, is severely compromised. Cocco and Jones (1997) seek the solution in the combination of extensive revenue sharing, a salary cap and government subsidy. Without these improvements some SMF will undoubtedly fail and, because no new Canadian location is superior to the existing locations, find it advantageous to relocate to the US.

It is in a major league's best interest that there are not too many relocations, it's a sign of instability. A research by Carlton (2004) has proven that a NHL franchise that has been relocated draws fewer fans to its away games and thereby imposes a cost on all other league members. The move effect disappears after the first few years and seems to be most concentrated on the U.S. teams.

5.9 Failed Relocations

Whenever a team announced that it would consider relocation, cities without a NHL or major league franchise responded in the hopes they would get a NHL team. But not every

city succeeded in getting a franchise, despite in some cases several tries. In 1967 the Oakland Seals joined the league when the planned arena in San Francisco never came. They were renamed to the California Seals to attract people from San Francisco, as the NHL did not recognize Oakland as a major market but still failed in Oakland. Local investors in both Buffalo and Vancouver, who missed out in the 1967 expansion, tried to relocate the Seals to their cities. The NHL blocked the move as they feared a rival league could take over the large San Francisco market. The Seals tried to get its rights in court in order to find out whether the NHL could lawfully prevent a member franchise from relocating its team from one city to another. The Seals organization claimed that the league's prohibition violated both sections 1 and 2 of the Sherman antitrust act. The Seals asserted that the league constitution violated section 1 by prohibiting clubs from relocating their operations. The section 2 claim rested on the argument that the relocation request was denied in an attempt to discourage the formation of a rival team or league. The Seals' arguments were denied; the Sherman act requires there to be at least two independent business entities before one can find conspiracy or collaboration in restraint of trade. Despite the fact that the individual teams of the NHL are independently owned finding that the league operated a single entity precluded the possibility of conspiracy (Lehn and Sykuta, 1997).

In 1983 the NHL blocked the relocation attempt by local investors to move the St. Louis Blues to Saskatoon, Saskatchewan. The NHL cited a number of reasons in their rejection of the transfer to Saskatoon, including a belief that the St. Louis franchise was not unviable in that center, a perception that the transfer would ' tarnish the major league mystique' of the league, a disbelief in the viability of a franchise in Saskatoon, a concern that a Saskatoon franchise would be an inferior drawing card than St Louis in many U.S. cities, the absence of a suitable playing facility and skepticism that one could be quickly constructed, and a concern over the financial structuring of the proposed sale (Geddert and Semple, 1983). Geddert and Semple's research showed that Saskatoon despite its low city population, fewer than 200,000 in 1983, but with a hinterland of over 600,000 with a very high interest in ice hockey. The study analyzed regional considerations and site-specific variables. It challenged the notion that attendance is simply a function of city population and a winning season. It showed the usefulness of including regional variables such as hockey enthusiasm when locating a professional a hockey franchise. Regions with high hockey interest levels provide strong support for their teams, despite dismal performance levels. Only where interest levels have declined is support largely dependent upon team quality. Over the long term quality levels tend towards the mean, centers in

these areas are less likely to sustain a viable franchise. In areas with low interest indices there is very low commitment to hockey as a sport. Despite large metropolitan areas, there are insufficient numbers of fans interested in attending professional hockey games. Franchises in these areas are sustained through charitable support of wealthy owners. The main problem lies that there is an absence of large metropolitan areas in some regions with very high interest in hockey. The analysis by Geddert and Semple suggests that if ability to attract paying customers is an important criterion, then reevaluations of the franchise allocation principles are needed. Centers like Saskatoon are likely to be more successful in ticket sales and interest than many large metropolitan areas. However question marks can be placed whether or not that will be enough to generate enough revenue to be viable and competitive at the same time.

Other cities that have tried to attract an NHL franchise in the last 15 years are: Hampton Roads, Houston, Kansas City, Las Vegas, Oklahoma City, Seattle and the Canadian cities Hamilton and Winnipeg. All cities were denied for different reasons, and all cities had different reasons for trying to get an NHL franchise. Where Hamilton and Winnipeg tried because it specifically involved major league hockey, Kansas City and Oklahoma City tried to get a major league franchise as they had none or they wanted a tenant for their newly built arena. In the cases of Seattle and Houston adding a NHL team would grant them the honor of being a grand slam city; having a major league sports franchise in all four leagues. Early 2007, Oklahoma City and Kansas City were long in the running for relocating the Pittsburgh Penguins who could not get a new arena deal. Both cities have a relatively new arena with no tenant. Oklahoma City temporarily hosts the New Orleans Hornets who needed a new home when hurricane Katrina destroyed their arena in New Orleans. Both cities offered very lucrative deals for the Penguins which included not paying rent and collecting all concession revenues. These strong bids pushed Pittsburgh to seal a favorable deal for the Penguins. Las Vegas tried to get the Penguins as well, together with the NBA's Hornets. Las Vegas is the U.S. fastest growing city but does not have a major league sports team. Major sports league require that local laws prohibit gambling on games. For a city like Las Vegas with the prominence of gambling, that is a problem. This is one of the reasons why Las Vegas still does not have a major league team yet (Sports Business News, 2007).

Cities that were favored in the last expansion in 2001 were Columbus and St Paul, which meant that hockey returned to Minnesota and the NHL would have a franchise in the populous Ohio market. They outbid Hampton Roads which is a large SMA, but is more

just a collection of cities lacking a central core city, plus it is not that far from Washington DC for major league services. Hamilton has attempted several times to locate a NHL franchise, its geographic position between Toronto and Buffalo has been used both as strength and a weakness. It is in the midst of the most populated region of Canada with only one other NHL team. Hamilton came close to a NHL team in 1993; however the NHL and the Canadian government preferred Canada's capital Ottawa, which left Hamilton again empty-handed. Winnipeg lost its NHL franchise in 1996 to Phoenix when their arena was not sufficient anymore. In 2002 they built a new arena that does meet the new standards. In the past other cities (St Paul, Denver) that had a NHL team but moved away, regained a NHL team by either expansion or relocation. Thus past failure cannot be used as a stand alone argument for not granting an NHL franchise. Denver, San Jose and Atlanta all have NHL teams again, while they have failed in supporting their previous NHL teams. Seattle and Houston would be viable locations based upon the population size of their SMA, but the NHL preferred Columbus for the, until then, not covered populous Ohio market and St Paul for the Minnesota hockey market.

5.10 Chapter Summary

This chapter dealt with relocations and expansions in American professional sports. Criteria for placement of a sports franchise are based on Population, Ownership, Competition, Income, Corporations, Venue and Interest of a metropolitan area.

The four American leagues expanded mostly to the fast growing urban areas in the Southern and Western states. Expansions are carefully chosen to cover specific geographic areas with potentially large markets. However some leagues, like the NHL, have reached their saturation point and have too many unstable franchises to expand further. Relocation moves unstable franchises to other cities where a stadium or arena does meet the future standards, or the returns on the short term are higher. The league strives for geographical diversity, and is hesitant in placing more than one team in the same market. When teams share a market, there is always a hierarchical pattern that the older and more successful team is the most stable franchise, which aids to the monopolistic status franchises have in their markets. The NHL has a long tradition with expansion and relocations, mostly from the northern hockey markets to the growing non-hockey markets in the south. The relocated- and expansion teams have trouble remaining financially sound. The many relocations and franchises portray the constant struggle the NHL has to endure as a major league that is still looking for its proper geographical balance. The NHL implements a strategy of conquering non-hockey markets and is

resilient towards relocating teams in relatively small, but enthusiastic hockey markets. A regional sport such as ice hockey, demands more diverse criteria for relocation and expansion than just population. Regional factors such as hockey affiliation and interest are of great influence to a team's popularity.

6. Franchise Variables

6.1 Data Set

There is great variance in the rate of success of the 30 NHL franchises. There are different ways to measure the rate of success. This research focuses on corporate success instead of competitive success. Especially competitive success depends on various intangible variables. Also, the fluctuations in competitive success are too strong to be a criterion.

Every year Forbes magazine publishes team rankings measuring team financial success in the four major leagues. The variables used as indicators for this are team value, revenue and operating income. Team value demonstrates the overall financial success of a team regardless of their competitive performance that year. Team value and revenue are the most common used variables for a team's success. Operating income is derived from deducing the operating costs from the revenues. However, since each franchise has a different policy on player salaries and other costs like arena use it is hard comparing teams equally solely on operating income and define its rate of success.

Section 5.1 already mentioned the key criteria the NHL uses for assessing location specific data variables. These criteria are transformed in the following variables:

1. Population
2. Average household income
3. Average per capita income
4. Cost of living
5. Corporations
6. Unemployment rate
7. Fan Cost Index
8. Other major league sports competition
9. Average attendance
10. Average attendance growth
11. Hockey interest

6.1.1 Population

Most researches about franchise location take the population of the Statistical Metropolitan Area (SMA) as the population for the city of the franchise location. Most of a market area goes beyond city boundaries and the entire SMA is a good estimation of this market. However, it does take several consumer groups into account that are not

necessarily consumers of professional ice hockey and sports in general. These groups, (small children, elderly and other individuals that are constrained to their habitat) do compose the population but are not the targeted audience for a professional hockey game. However due to time limitations and in the line of other researches we will neglect this fact and take the entire SMA population as population size. Television markets are often estimated parallel to the size of the SMA. This research also uses only the metropolitan size and not separate figures for television markets.

6.1.2 Average Household Income

Professional sports positions itself as family entertainment. The average household income is an indicator of family income. This variable compares the different incomes per city. The data were gathered from US and Canadian databases, the Canadian incomes were converted to the US dollars with the exchange rate at April 1st 2007.

6.1.3 Average per Capita Income

The per capita income does the same as household incomes but then for individual. It is a potential consumer indicator as tickets are sold individually. The Canadian averages were also converted to US dollars.

6.1.4 Cost of Living

The cost of living index shows the difference in costs in different areas. It makes a good estimation of the actual discretionary income individuals have in different cities and regions. The consumer price index (CPI) is frequently called a cost-of-living index, but it differs from a complete cost-of-living measure. A cost-of-living index is a conceptual measurement goal, however, not an alternative to the CPI. A cost of living index would measure changes over time in the amount that consumers need to spend to reach a certain utility level or standard of living. Both the CPI and a cost of living index reflect changes in the prices of goods and services, such as food and clothing that are directly purchased in the marketplace; but a complete cost of living index would go beyond this to also take into account changes in other governmental or environmental factors that affect consumers' well-being. It is very difficult to determine the proper treatment of public goods, such as safety and education, and other broad concerns, such as health, water quality, and crime that would constitute a complete cost of living framework. For this research the consumer price index is taken as an indicator of the difference in spending in the different areas. The US average is taken as 100 in the index; the Canadian indexes are converted to US dollars, so 100 serves as the base for the Canadian CPI as well.

6.1.5 Corporations

In order to support major league franchises corporate support is necessary. The (local) corporations are the prime targets in selling luxury boxes and personal licensed seating, both are essential in earning revenue. Sometimes corporations, or wealthy local entrepreneurs linked to the local corporate industry, are involved in the franchise ownerships. Even though being absolutely crucial in determining location, corporations are a hard variable to locate. For this research, Forbes' list of the world's largest companies has been used allocating corporations per SMA. Only the top 200 companies were taken and located to make it synoptic. It is taken into account that not all existing and possible locations dealt with in this research will have corporations in the Forbes' top 200. The division of the world's top corporations is used to portray the difference between large market franchises and small market franchises and their relative importance in sustaining a major league franchise.

6.1.6 Unemployment Rate

The unemployment rate indicates on how well a local economy is doing. The difference in unemployment rates portray the flourishing or diminishing local economy, which can be linked to sustainability of a major league franchise by discretionary income. A flourishing economy provides a higher discretionary income that a diminishing one in combinations with factors like cost of living, per capita income and local corporate life.

6.1.7 Fan Cost Index

Every year Rodney Fort publishes the fan cost index (FCI), which shows what an individual visit to a National Hockey League franchise costs. The average purchase and spending of what makes the full fan experience are listed in the fan cost index. The average costs of a ticket, drinks (beer and soda), parking, program and a souvenir in the form of a cap are all accumulated to come to the average fan cost index per team. All current NHL teams are listed. It shows how the prices differ among cities, especially between the hockey and non-hockey markets. The league average FCI can be used as an indicator for the fan experience in the projected new location and compared to the other economic indicators validity of a team in that location could be estimated.

6.1.8 Other Major League Sports Competition.

The other teams in the four major league sports are competitors. If a city already has franchises in other sports they will both compete for the same spectators. In the case of

minor league hockey teams, these teams were perceived as competition as well.

6.1.9 Average Attendance

Attendance figures over the last five years for every NHL and minor league teams were taken as estimation for team popularity and success. The five year period was taken to avoid that incidental high or low attendance records would influence the data. Both the absolute attendance as the percentage of the total capacity were calculated. The total capacity was calculated by comparing the average annual attendance with the capacity of the arena.

6.1.10 Average Attendance Growth

The average growth in attendance was calculated by comparing the current year's attendance with the previous years, as our the dataset used for this research only consisted of five years, only four years could be calculated in growth figures.

6.1.11 Hockey Interest

Interest in (professional) ice hockey can be measured in different ways and is hard to implement as a single variable into the regression analysis, because of the data is derived from different sources. O'Connell (1997) used the production of ice hockey players in major and minor league level. Figure 6.1 shows the map O'Connell produced for player production in North America. All Canadian provinces have high player production especially the Midwestern provinces Saskatchewan and Manitoba. Minnesota and Massachusetts are the two states with the highest player production.

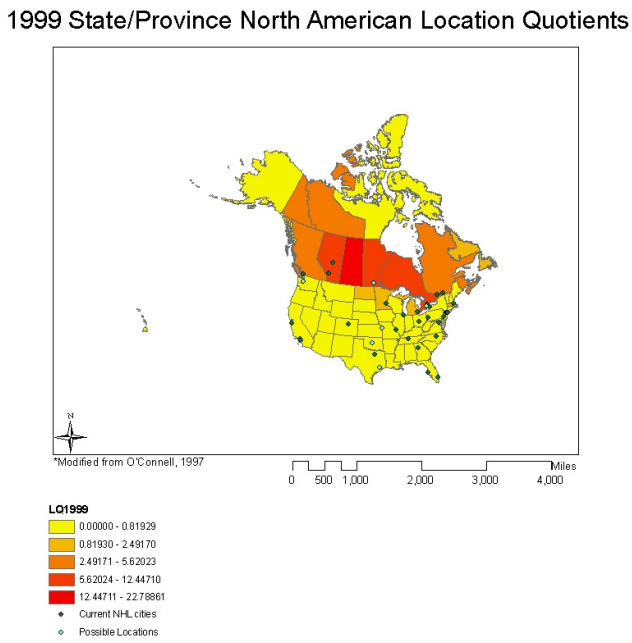

Figure 6.1 (O'Connell, 1997)

Geddert and Semple (1983, 1987) used that variable as well plus the geographical breakdown of total paid circulation for the Hockey News magazine, as well as the presence of major, junior, college and minor professional hockey teams to estimate average hockey interest (Figure 6.2) and potential hockey demand (Figure 6.3). Again these maps show that both potential demand as hockey interest is higher in Canada and only a few states that are known as hockey markets.

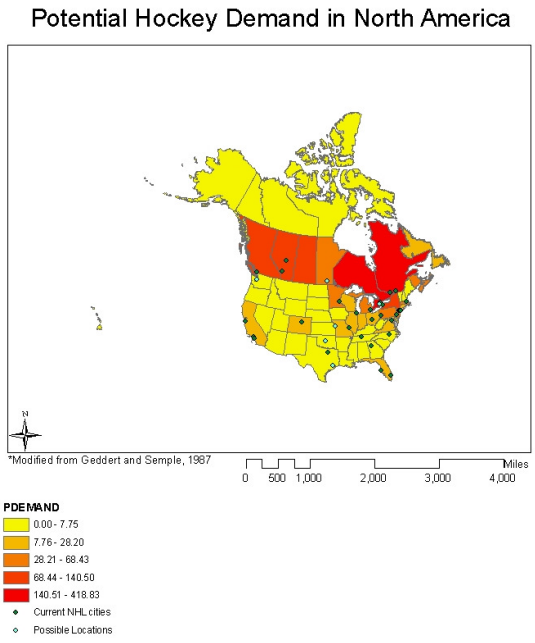

Figure 6.2 (Geddert and Semple, 1987)

For this research results from both studies will be used as well as the average attendance in absolute numbers as well as capacity percentages for the existing NHL franchises as well as the minor professional and junior league teams in the projected new locations.

6.2 Success Factors

Table 6.1 portrays team value is the primary indicator that Forbes uses to rank major league teams. Looking at the 10 teams with the highest value, they are all large market franchises, with the exception of Denver, however Colorado is not considered a traditional small market franchise either. There are three Canadian cities in the top 10, the country's biggest cities; Toronto, Montréal and Vancouver. All teams but Vancouver and Los Angeles have won a Stanley cup in their existence. And five of the original six teams are mentioned.

The teams ranked at the bottom of Forbes' list are the small market southern teams such as Nashville, Florida and Washington. Calgary is ranked fairly low compared to other hockey markets at 26. The so-called secondary teams in shared markets, Anaheim, New Jersey and the New York Islanders are all ranked in the bottom half and all work with a negative operating income. This is even more surprising as all these teams have been far more competitive in the last decade than their inner city rival, and in New Jersey's case even won the Stanley cup twice since 2000.

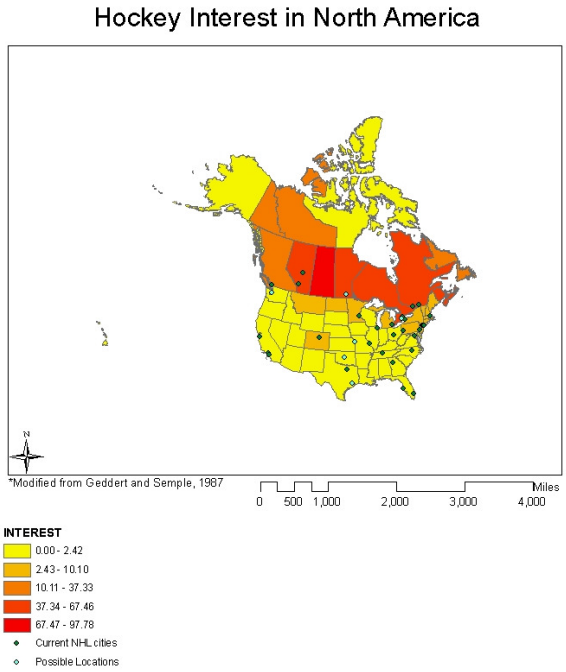

Figure 6.3, (Geddert and Semple)

It seems that the traditional financial powerhouses are all Large Market Franchises, and that the Canadian Small Market Franchises score relatively high. The absolute most successful franchise is the Toronto Maple Leafs, even though their last championship dates back to 1967 they remain by far the most popular team in the league. They are the number one team in team value, revenue and operating income. All their home games are played in front of sellout crowds. There is a large gap between Toronto and the number

two; the New York Rangers. Dallas and Los Angeles are the only non- hockey market franchises that are ranked high. The teams that are ranked in the lowest regions are mostly expansion SMF in the south.

Forbes Magazine's 2006-07 NHL franchise financial valuation Posted on Friday, November 10 2006

	Team	Current Value 1 ($mil)	Revenue 2 ($mil)	Operating Income 3 ($mil)
1	Toronto Maple Leafs	332	119	41,5
2	New York Rangers	306	109	17,7
3	Detroit Red Wings	258	89	5,8
4	Dallas Stars	248	89	10
5	Philadelphia Flyers	246	88	0,9
6	Boston Bruins	235	86	4,8
7	Montreal Canadiens	230	90	17,5
8	Colorado Avalanche	219	81	5,9
9	Los Angeles Kings	205	82	7,1
10	Vancouver Canucks	192	80	1,1
11	Tampa Bay Lightning	172	82	5
12	Chicago Blackhawks	168	67	3,1
13	Minnesota Wild	163	71	4,7
14	Ottawa Senators	159	76	4,2
15	Anaheim Ducks	157	75	-0,2
16	St Louis Blues	150	66	1
17	Buffalo Sabres	149	70	4,6
18	New Jersey Devils	148	62	-6,7
19	Edmonton Oilers	146	75	10,7
20	San Jose Sharks	145	69	1,8
21	Carolina Hurricanes	144	72	0,5
22	Phoenix Coyotes	143	63	-6
23	Florida Panthers	142	65	-1,9
24	New York Islanders	140	56	-9,2
25	Columbus Blue Jackets	139	66	-4
26	Calgary Flames	135	68	2,3
27	Nashville Predators	134	61	-1,1
28	Pittsburgh Penguins	133	63	4,8
29	Atlanta Thrashers	128	64	-5,4
30	Washington Capitals	127	63	4,6

Table 6.1 Forbes Team Rankings, Source Forbes, 2007

To come with statistical evidence which of these criteria are essential for a successful NHL franchise, this research implements three regression analyses. Each regression analysis has a different dependent variable. The success indicators team value, revenue and operating income are taken as the dependent variables. The other variables are used

as independent variables in each of the regressions.

6.3 Correlations

Not all independent variables are completely independent. For example, the average household income of any of the NHL cities is strongly correlated with the average per capita income of the same city. Because of that correlation, the effect of average per capita income is less for the dependent variable, as most of its correlation has been taken care of by the average household income variables due to their intra correlation. Before looking at the regression analysis the independent variables will be checked for correlation with each other. For this research these correlations between the independent variables have to be taken into consideration and be grouped into smaller groups. These smaller groups contain the variables that have strong correlations with each other. The formed groups can be captured by their linkage. Three sets of correlated variables were detected; household and per capita income are strongly correlated. Which makes sense as it is likely that in an area where the household income is high the per capita income is high as well. The average height of income in- and decreases for both households as individuals. Both variables can be categorized as economic prosperity. Population, corporations and cost of living have strong correlations with each other, these are all indicators of a metropolitan area. The larger the urban area, the more likely there will be more large corporations as they tend to locate in urban areas. The cost of living is usually higher in large metropolitan areas, this is definitely the case for New York City, where the cost of living is twice as high as the American average. Finally, average attendance and fan cost index are strongly correlated. This could be explained as hockey interest, or team popularity. In both cases, the team or sport that is popular can afford itself to have a higher fan cost index, the higher the popularity of a team, the more people like to attend games which makes people willing to pay more for attending those games. Additionally looking at the three dependent variables in the three regressions and their correlations with the other variables, it shows that the three dependant variables are correlated with each other. Also fan cost index and the unemployment rate are correlated with revenue, team value and a team's operating income[4].

6.4 Variable Rankings

Each regression analysis calculates which independent variables contribute the most to the dependent variables; team value, revenue and operating income. And it shows

[4] Full correlation matrix in Appendix IV

whether or not the independent variables contribute significantly to the dependent variable. Each result will be discussed briefly.[5]

6.4.1 *Team value*

Team value has a R2 of ,712, which means that 71,2% is explained with this regression. Average attendance is the only variable that is that contributes significantly with a significant F value of 0.001% Average attendance growth contributes the least for the team value.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,844(a)	,712	,424	46,407	,712	2,473	10	10	,085

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,676(a)	,456	,428	46,262	,456	15,950	1	19	,001
2	,730(b)	,533	,481	44,069	,076	2,938	1	18	,104
3	,783(c)	,613	,544	41,286	,080	3,508	1	17	,078
4	,804(d)	,646	,558	40,679	,033	1,511	1	16	,237
5	,819(e)	,671	,562	40,480	,025	1,158	1	15	,299
6	,831(f)	,691	,558	40,636	,020	,885	1	14	,363
7	,838(g)	,703	,543	41,337	,012	,529	1	13	,480
8	,842(h)	,709	,516	42,566	,006	,260	1	12	,619
9	,843(i)	,711	,474	44,344	,001	,057	1	11	,816
10	,844(j)	,712	,424	46,407	,001	,044	1	10	,838

Predictors: (Constant), Average attendance, FanCostIndex, AVGhouseholdIncome, UnemploymentRate, AVGincomepcap, Corporations, MSAPopulation, CostOfLiving, OtherSports, Average Growth

Table 6.2, regression table with team value as dependent variable

[5] All data are listed in Appendix VI

The outcomes of this regression results in the following order of contribution importance: 1. Average Attendance; 2. Fan Cost Index: 3. Average Household Income: 4. Unemployment Rate; 5. Average per capita income; 6. Corporations; 7. Population; 8. Cost of living; 9. Other sports; and 10. Average attendance growth. It is remarkable that metropolitan factors such as population, cost of living and other sports are at the low end of this table.

6.4.2 Revenue

A NHL franchise's revenue is explained for 69,7% in this regression analysis. In this regression two variables; average attendance and average household income are significant with respectively 0.001% and 0.046% significant change. Of all variables the other major league sports in the metropolitan area explain the least in the team's revenue.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,835(a)	,697	,394	12,667	,697	2,298	10	10	,103

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,690(a)	,476	,449	12,079	,476	17,265	1	19	,001
2	,763(b)	,582	,536	11,082	,106	4,573	1	18	,046
3	,798(c)	,637	,573	10,629	,055	2,568	1	17	,127
4	,807(d)	,651	,563	10,748	,014	,625	1	16	,441
5	,820(e)	,672	,562	10,762	,021	,957	1	15	,344
6	,823(f)	,677	,539	11,046	,006	,240	1	14	,631
7	,825(g)	,681	,510	11,389	,004	,169	1	13	,688
8	,832(h)	,693	,488	11,634	,012	,458	1	12	,511
9	,834(i)	,695	,446	12,103	,002	,088	1	11	,772
10	,835(j)	,697	,394	12,667	,001	,042	1	10	,841

Predictors: (Constant), Average attendance, AVGhouseholdIncome, FanCostIndex, Average Growth, UnemploymentRate, AVGincomepcap, CostOfLiving, MSAPopulation, Corporations, OtherSports

Table 6.3, regression table with revenue as dependent variable

The outcome of the regression with revenue as the dependent variable has the following outcome: 1. Average attendance; 2. Average household income; 3. Fan Cost index; 4. Average attendance growth; 5. Unemployment rate; 6. Average per capita income; 7. Cost of living; 8. Population; 9. Corporations; 10. Other sports. Again the metropolitan factors can be found at the low end of the table, while the hockey interest factors are at the upper end.

6.4.3 Operating Income

A NHL franchise's operating income is explained for 58,2 % with this regression. Average attendance and average household income are the two variables that are significant with 0.009% and 0.014% significance. This is the same as for revenue, which is not surprising as a franchise's operating income is a function of its revenue. Corporations in the metropolitan area explain the least in this regression.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,763(a)	,582	,164	9,42482	,582	1,392	10	10	,306

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,556(a)	,309	,273	8,78884	,309	8,502	1	19	,009
2	,716(b)	,512	,458	7,58881	,203	7,484	1	18	,014
3	,744(c)	,553	,474	7,47439	,041	1,555	1	17	,229
4	,752(d)	,566	,457	7,59168	,013	,479	1	16	,499
5	,759(e)	,576	,434	7,75088	,010	,349	1	15	,563
6	,761(f)	,580	,399	7,98684	,004	,127	1	14	,727
7	,762(g)	,581	,355	8,27829	,001	,032	1	13	,862

8	,762(h)	,581	,302	8,61036	,001	,017	1	12	,900
9	,763(i)	,582	,240	8,98623	,001	,017	1	11	,898
10	,763(j)	,582	,164	9,42482	,000	,000	1	10	,994

Predictors: (Constant), Average attendance, AVGhouseholdIncome, UnemploymentRate, MSAPopulation, OtherSports, AVGincomepcap, CostOfLiving, FanCostIndex, Average Growth, Corporations

Table 6.4, regression table with operating income as dependent variable

The variable ranking from the regression with operating income as the dependent variable is as following: 1. Average attendance; 2. Average household income; 3. Unemployment rate; 4. Population; 5. Other sports; 6. Average per capita income; 7. Cost of living; 8. Fan cost index; 9. Average attendance growth; 10. Corporations.

6.5 Rankings

When the outcomes from the regression are put next to each other in order of by how much each independent variable explains the outcome of the dependant variable, it shows that in all three regressions the independent variable that explains the biggest part is average attendance. This is also the variable that is significant in each regression.

TEAM VALUE	REVENUE	OPERATING INCOME
1. Average Attendance	1. Average Attendance	1. Average Attendance
2. Fan Cost Index	2. Average Household Income	2. Average Household Income
3. Average Household Income	3. Fan Cost Index	3. Unemployment Rate
4. Unemployment Rate	4. Average Attendance Growth	4. Population
5. Average Per Capita Income	5. Unemployment Rate	5. Other Sports
6. Corporations	6. Average Per Capita Income	6. Average Per Capita Income
7. Population	7. Cost of Living	7. Cost of Living
8. Cost of Living	8. Population	8. Fan Cost Index
9. Other Sports	9. Corporations	9. Average Attendance Growth
10. Average Attendance Growth	10. Other Sports	10. Corporations
Explains: 71.2 %	**Explains: 69.7%**	**Explains: 58.2%**

Table 6.5, Regression outcomes.

The rankings in table 6.5 are not conclusive, they just give an indication on what the regression analysis tells about the impact each variable has on the dependent variable. Only the independent variable of the average attendance came out significant in all three runs. Thus in every regression the average attendance explains the largest portion of the teams' success in value, revenue and operating income. All the other variables do explain

some, but are not significantly in their respective order. Additionally, the total part that was explained by the regression was fairly low. Team value had the largest part explained by the regression with 71,2%, while operating income just barely had half of the regression explained by the regression. One explanation could be that there are still intangible regional variables that contribute to a team's success translated into team value, revenue and operating income, that cannot be captured in a regression analysis.

7. New Locations

The six possible locations chosen as potential new NHL sites for this research all have tried to lure an NHL franchise by the various expansions and relocations over the last fifteen years. There have been more cities that also tried, but the six most proactive were chosen for this research. In this chapter each location will be described briefly. Appendix VI shows all city data used in the regressions.

7.1 Hamilton, Ontario

Hamilton is the second biggest city in the Southern Ontario, and the 9th largest metropolitan area of Canada with a population of 692,911(Statcan, 2007). However the entire Golden Horseshoe region where Hamilton lies in the exact middle of, has a population of 11,958,46. The Golden Horseshoe is a densely populated and industrialized region at the west end of Lake Ontario in Southern Ontario, Canada. Although it is a geographically named sub-region of Southern Ontario, "Golden Horseshoe" is more frequently used to describe the metropolitan region that stretches across the area. Hamilton is a so-called blue collar town, the working class is the predominant one in Hamilton, and therefore the average income is slightly lower than elsewhere in Canada.[6] However, compared to the US average, the average income in Hamilton is rather high as well as the cost of living. The biggest employers are governmental or educational institutes such as Hamilton Health Services Corp, City of Hamilton and the Macmaster University. Hamilton is Canada's premier site for steel manufacturing, Stelco and Dofasco are the biggest steel manufacturers located in Hamilton. Hamilton has a NHL-ready arena in the Copps Coliseum which already venues national and international sporting events. Hamilton is located far enough from both Buffalo as Toronto to not to infringe the 50-mile radius. The Hamilton Bulldogs are an AHL team that currently plays in the Copps Coliseum which won the AHL championship of 2007 for a sellout crowd. Hamilton is the home of the Canadian Football hall of fame, and has a CFL team. The entire region has numerous hockey teams in all leagues, however only one NHL team on Canadian soil.

7.2 Houston Texas

Houston is one of the largest metropolitan areas in the US. It has a metropolitan

[6] Average household income: CAN$ 64.800 / US $ 62.015 Per capita CAN$ 27.000 / US$ 25.840 Source; http://www40.statcan.ca/l01/cst01/famil21a.htm

population of 4,669,571 people. Houston's port attracts large oil companies such as Shell and Exxon-mobile. The cost of living in Houston is below the national average and the same goes the average income both household and per capita[7]. Houston has a successful AHL team, the Houston Aeros, which in the 1970's was a successful franchise in the WHA. Houston has major league teams in every other sport. Having an NHL team would make Houston a grand slam city, and the small but vibrant hockey community surrounding the Houston Aeros would love to see that happening.

7.3 Kansas City, Missouri

Kansas City opened a brand new arena, the sprint center, in 2007 and is searching for a regular tenant. Therefore Kansas City tried, but failed to lure the Pittsburgh Penguins in early 2007. The Metropolitan area holds 1,776,062 people. Large corporations like Sprint and Hallmark are the city's biggest employers. Average incomes and cost of living are below the national average. In the 1970's Kansas City was the home of the NHL's Kansas City Scouts, back then hockey turned out to be not successful in Kansas City and the team moved after two seasons to Denver. Kansas has a major-league baseball and a football team.

7.4 Oklahoma City, Oklahoma

Oklahoma City has the reputation of a small urban area, the metropolitan area has 1,083,346 residents, making Oklahoma city a small franchise market, but not necessarily unsuccessful. The New Orleans Hornets moved temporarily to Oklahoma City, after Hurricane Katrina demolished their Arena. Oklahoma City welcomed the NBA's Hornets with close to sellout crowds. This generated speculations about making Oklahoma the home of the Hornets or another major league basketball or hockey team. Oklahoma City was actively involved in the Pittsburgh Penguins rumors as well. Its CHL hockey team the Oklahoma Blazers plays for regular 8000+ crowds at the Ford center opened in 2002. Oklahoma City has no history with any major league sports. The city's largest employers are the State and University of Oklahoma. The average incomes and cost of living in Oklahoma City are lower than the national average.

7.5 Seattle, Washington

Seattle is another large US metropolitan area lacking a major league hockey team is

[7] Average household income $46,326, per capita $23,535. SOURCE: US Census Bureau, 2006; income statistics for the year 2005

Seattle. Seattle is the home of large corporations like Microsoft, Boeing and Starbucks. The population of the metropolitan area has about 3,554,760 people. These large multinationals increase the average household and per capita income. Both are above the national average. The cost of living in Seattle is above average as well. Seattle has a history with hockey and the NHL. The Seattle metropolitans were the first American team winning the Stanley Cup in 1917. The city's WHL team the Seattle Thunderbirds has been a strong and popular franchise in junior hockey. The city has franchises in the three other major leagues. However, the owner of the NBA's Seattle Supersonics has repeatedly mentioned a move away from Seattle and its rather small Key Arena (15,177 seats). Oklahoma City and Kansas City have both been mentioned as a possible new home for the Supersonics (Seattle-Weekly, 2007). This can both be positive and negative for a possible NHL relocation to Seattle. The arena will need a regular tenant and might get city support in getting an NHL franchise. However, if a NBA franchise cannot sustain in Seattle, the chances for an in TV ratings less popular NHL franchise might be even smaller. Even though Seattle is not located in hockey country its proximity to the Canadian border could help in gaining popularity.

7.6 Winnipeg, Manitoba

Winnipeg lost its NHL franchise in 1997 to Phoenix, but with a new arena, Winnipeg calls itself NHL ready again. The local enthusiasm never moved away like the Winnipeg Jets franchise. Winnipeg is Canada's eight largest metropolitan area with a population of 706, 749, however with Manitoba as its hinterland Winnipeg's possible market area has 1,119,583 inhabitants (Statcan, 2007). Even NHL's Commissioner Gary Bettman favors Winnipeg as the location if another franchise would be relocated to Canada (Globe and Mail, 2007a). The city has a brand new Arena, the MTS Centre which opened in 2004, which favors Winnipeg over Hamilton and Quebec City. Hamilton, Winnipeg and Quebec City are always mentioned in relocation rumors as they are the largest Canadian cities without an NHL franchise. Quebec City being the largest city and having a very strong hockey community and NHL history is not taken seriously to this point as a possible location because its arena dates back from the 1940's making it not eligible for a modern day NHL franchise. Winnipeg's local economy is prosperous surpassing cities like Montréal and Vancouver in corporate headquarters by city per 100.000 population. The city's main activities lay in the manufacturing and the agribusiness sectors. The average income in Winnipeg is equal to the national average, but costs of living is higher. Compared to the US average, Winnipeg has both higher income as well as costs of living (Winnipeg, 2007).

8. Potential New Locations

In this chapter the six cities in this research will be analyzed along the theory, results from the regressions, the correlations matrix and previous studies in this field, with the goal of trying to estimate the better location for a NHL franchise among these six cities. In the next chapter Southern Ontario including the Greater Toronto Area will be discussed in more detail.

The correlation matrix in appendix IV shows that the variables correlate with each other in some cases and can be categorized into three groups; 1.) Economic prosperity, 2.) Metropolitan status and 3.) Hockey interest. According to the regression only the hockey interest category, translated in attendance, is significant. The regressions only explain a small part and are not significant, therefore can only be used as indicators in conjunction with the theory. The regression rankings together with the correlation matrix in the appendix indicate that variables describing hockey interest is responsible for the largest part of all three regressions; team value, revenue and operating income, followed by economic variables and the metropolitan status variables of the city. The composition of these rankings does vary, but the overall look of it shows that the hockey interest variables are usually higher than the economic variables, which on their part are ranked higher than the metropolitan status of the city. It is worthwhile to note that still all variables are influential for a successful NHL franchise.

8.1 Hockey Interest

Of the variables used in the regression, attendance and fan cost index determine hockey interest. Only attendance can be applied at the six cities used as cases in this research. Data for the other variable, fan cost index is unavailable as the fan cost index is only known for the current NHL teams. To still measure the interest in professional hockey from more than one variable to have a more diverse measurement, other variables and sources of information, can be used.

As a first step lower tier hockey teams and their popularity expressed in average attendances, the history of the city with professional hockey and the availability of the product professional hockey are used. All of these are indicators of interest in hockey. Geddert and Semple (1987) used some of these indicators in their study. When there is (popular) minor league hockey in a city, there is affiliation with the sport, and the chances of a major league hockey team to be successful are more likely, as the people already enjoy lower level hockey. Also lower level hockey both youth and adult show

that hockey activity is high, thus interest in the sport will be high as well. Failed hockey franchises on the other hand, could show that the market in that specific city is not a profitable hockey market. However, both Colorado and Minnesota have shown that when a franchise leaves town, it does not automatically mean that major league hockey will never return, it must be added that both Colorado and Minnesota are recognized hockey markets.

CHL team Oklahoma City Blazers has the highest average attendance of all minor league hockey teams. But there are no other hockey or other major league sports alternatives there. Second in attendance is Winnipeg. In Winnipeg there are very few alternatives as well, although there are two more WHL junior hockey teams in Manitoba. Houston, Hamilton, Seattle and Toronto all follow closely not having large differences between their attendance numbers. Even though the regression pointed out that other major league sports franchises is one of the variables with the least influence on a team's success, for lower level hockey it could make a difference since the regression was done with major league hockey data. Looking at attendance ratings between the different leagues, it shows that higher level hockey leagues draw higher attendance. Other major leagues could decrease attendance for minor leagues. Houston offers major league alternatives in the three biggest sports in the United States for AHL hockey. In the Greater Toronto region there are two AHL franchises and even five junior hockey league teams, plus alternatives in major league basketball, football and baseball. Seattle also offers more alternatives in junior hockey, the Seattle MSA has two WHL minor league teams while the entire state of Washington has four, and even nearby Portland and British Columbia could be potential market area for a Seattle NHL franchise. In that light the availability of hockey is much higher in the GTA and in a lesser extent near Seattle.[8]

O'Connell (1997) mapped the relative production of major league hockey players for North America, figure 6.1 shows this map and can be used as an indicator for hockey interest. The map shows that the Canadian provinces all score higher than any US state. The highest scoring US states, Minnesota and Massachusetts, match the lowest Canadian provinces. None of the states where the cities used in this research are located have a high player production. Both Ontario and Manitoba are categorized in the second highest group of player production. Which is interesting as Ontario outranks Manitoba largely in absolute population. Despite having just over a million state residents Manitoba has a

[8] Appendices V.A, B and C show all attendance records.

large production of hockey players that could be caused by the sport's popularity in this region.

Geddert and Semple (1987) also mapped variables, figures 6.2 and 6.3, which can be used for measuring the popularity of hockey. For their research they mapped both interest and potential demand, even though the research dates back quite a while, it is the most recent documented mapping of hockey interest and hockey demand per region throughout North America. Again the Canadian provinces have higher interest and potential demand ratings. Interestingly enough Kansas City's home state Missouri scores higher than the other US states for the potential demand. Ontario shows the largest demand, followed by Manitoba, Missouri and the other US states are all categorized in the lowest demand and interest category.

The IIHF survey of registered ice hockey players shown in appendix I shows that the interest is a lot higher in Canada than in the United States, 1.67% versus 0.15%, this could be interpreted that at least 1,67% of both Winnipeg and Hamilton's population have an certain interest in hockey as they are active in the sport. While only 0.15% of the US cities are actively involved in hockey. Unfortunately these are country averages, because hockey is such a regional sport it can be assumed that the difference varies greatly among the different regions as the maps by Geddert and Semple showed. Still, it does support the assumption that hockey is a lot more popular in Canada. Additionally the survey shows that Canada has far more rinks than any country (14,000) as a comparison the nr 2. the United States has 2100.

Attendance is based on the average attendance over the last five years, since Kansas City has no minor League hockey, it was ranked last. Minor league hockey is based on the number of teams and their popularity. History is based on professional hockey franchises in the past and their popularity and success. Due to the different situations it is hard to rank these six cities accordingly for their hockey interest. The maps made by Geddert and Semple together with the number of minor league hockey teams and their attendance ratings show that the Canadian cities Hamilton and Winnipeg do well, where Winnipeg has better numbers over Hamilton, but Hamilton has more nearby competition. Oklahoma City's attendance records over five years are the highest of all cities, however the lack of other sports and entertainment facilities might be an influence. If the NBA's Hornets do decide to relocate to Oklahoma City's minor league hockey attendance ratings might drop significantly. Due to the variety of choice between minor league hockey in the Greater

Toronto Area and the attendance ratings, Hamilton does fairly well, compared to the single minor league hockey teams such as Winnipeg and Oklahoma City. Kansas City has no minor league hockey and has failed with major league hockey in the past, which decreases the odds of success, despite having a brand new arena. The same can be said about Winnipeg, but their years in both the WHA (7) and the NHL (17) outnumber Kansas City's two NHL seasons largely. Houston has little edge over Seattle having higher attendance numbers in all their major league sports. However, Seattle has a little edge in minor league hockey having more teams in the state. Taking all factors into consideration the six cities have been ranked 1-6, the city that with the highest rank has the best score on the respective variables, and 6 is has the lowest in this group of cities, which does not necessarily mean it scores bad in that category, just the other cities score. The city with the lowest total number suits the particular category the best among these six cities.

	Hamilton	Houston	Kansas City	Oklahoma City	Seattle	Winnipeg
Attendance	3	4	6	1	5	2
Minor League	1	4	6	5	3	2
History	2	4	5	6	3	1
Total	6	12	17	12	11	5

Table 8.1, Rankings Hockey Interest

According to table 7.1 Winnipeg has the highest hockey interest determined from the variables in this category. The full ranking is:

1. Winnipeg
2. Hamilton
3. Seattle
4. Houston
5. Oklahoma City
6. Kansas City

Even though Oklahoma City and Houston are tied with both 12 points, Houston's long history in the AHL and WHA makes Houston more familiar with hockey and therefore a higher hockey interest.

8.2 Economic Prosperity

How well the cities are doing economically speaking can be derived from the income numbers and unemployment rate. Also, according to the correlation matrix both household and per capita income are correlated with the growth in attendance. Therefore this variable is categorized into this group. When a person has a higher income he or she might then rather go to a major league sports game, as a higher discretionary income makes leisure expenses possible. Baade and Dye (1990) explained that professional sports are substitute spending, which supports that higher income could increase attendance ratings over a five year period. Incomes in Canada are higher than in the US, however, as well as the unemployment ratings. Seattle has the highest income of all US cities, and even the highest per capita income of all cities. The regression shows that the household income is more influential than the per capita income, and for revenue household income is even significant. Seattle has the best economic numbers and a low unemployment rate. Winnipeg has higher household and per capita income than Hamilton and the other US cities. Oklahoma City has the lowest unemployment rate of all six cities but also the lowest incomes. Despite its big city status and the presence of large corporations Houston has a low average income. All cities do not vary greatly in their unemployment rates, but they are not equivalent. The average growth in the respective minor league hockey team attendance is very steady, with no city having a higher growth rate than 2 % over five years. The junior league teams in the GTA do have larger fluctuations in both directions in their attendance. Oshawa has the largest growth of 7%, however, of all GTA municipalities Oshawa lies the furthest away from Hamilton, and people from Oshawa are more likely to go to the nearby Maple Leafs than all the way to Hamilton to see a NHL game.

	Hamilton	**Houston**	**Kansas City**	**Oklahoma City**	**Seattle**	**Winnipeg**
Household Income	2	5	4	6	3	1
Per Capita Income	6	4	3	5	1	2
Attendance Growth	1	2	6	4	5	3
Unemployment	6	4	5	1	2	3
Total	15	15	18	14	11	9

Table 8.2 Rankings Economic prosperity

Table 8.2 shows the values for the six cities for economic prosperity, the ranking derived from table 8.2 is stated on the next page.

1. Winnipeg
2. Seattle
3. Oklahoma City
4. Houston
5. Hamilton
6. Kansas City

Table 8.2 shows that two cities are tied, Houston and Hamilton, but since Houston has larger corporations, and has one of the biggest ports in the US, economically speaking it has an edge over Hamilton and is ranked higher than Hamilton.

8.3 Metropolitan Status

The metropolitan status of these six cities is easier to define than their respective interest in hockey. First of all, there are the population ranks which are quite definite and already give a sort of order in size. Other factors that add to the metropolitan status according to the correlation matrix are corporate activity, cost of living and other major league sports teams.

The research primarily focuses on Southern Ontario, however due to the 50 mile NHL market radius and the availability of an NHL ready arena Hamilton is taken as centre. The MSA of Hamilton itself is fairly small, even though it has a great urban surrounding from the entire region. If entire Southern Ontario was taken as one metropolitan area, which it is not, it would lead to skew proportions compared to the other MSA's. Still the entity of Southern Ontario is a very sound market base for a NHL team in Hamilton. Additionally the costs of living are higher in Canada then in the US, therefore both Winnipeg and Hamilton are more expensive to live than any of the projected US cities. In a Canadian retrospect, Winnipeg and Hamilton have a lower cost of living than the country's biggest cities. Houston is the largest stand alone metropolitan area, the MSA Houston-Galveston has the highest population, the highest number of corporations. Even within the current NHL cities, Houston would be a large market franchise. It is the largest metropolitan market not covered by the NHL. Seattle, has the highest costs of living of the four US cities, but has a lower population, less corporate headquarters and less major league teams then Houston. The metropolitan ranking is stated on the next page.

	Hamilton	Houston	Kansas City	Oklahoma City	Seattle	Winnipeg
Population	6	1	3	4	2	5
Costs of Living	2	6	4	5	3	1
Other Sports	3	1	4	6	2	5
Total	11	8	11	15	7	11

Table 8.3, Rankings metropolitan status

Ranking the cities according to the metropolitan variables leads to the following ranking:

1. Houston
2. Seattle
3. Hamilton
4. Kansas City
5. Winnipeg
6. Oklahoma City

Even though table 8.3 shows that Seattle has fewer points that Houston, and should be ranked above Houston in metropolitan standard, Seattle is ranked number 2. This is because in this ranking the variable corporations has not been used. Only Houston and Seattle have corporate headquarters listed in the top 200 of Forbes and the other cities did not. Adding them into the ranking would bias the ranking. However, in such a close outcome like this ranking, that single variable does make a difference between the cities Seattle and Houston in there metropolitan status. Especially since Houston has more corporate headquarters than Seattle, seven versus three. Because Houston had the lowest costs of living of all cities which gave them place six for cost of living, which influenced their total score. Houston ranks number one in the other two variables. Therefore Houston is misplaced at the number two spot, and adding the variable corporations Houston will be ranked number 1 just above Seattle.
Hamilton, Kansas City and Winnipeg are all tied looking at the total value points in table 8.3. To differentiate the cities, the surrounding metropolitan area and hinterland, although earlier explained that it would not be taken into the ranking, will be decisive. The Golden Horseshoe region boosts the agglomerate population of Hamilton beyond Kansas City, and Winnipeg. Winnipeg lies isolated in the densely populated Manitoba, which makes the region for Kansas City a lot more populous and more metropolitan.

8.4 Overall Potential

The six cities all have different motivations for getting a NHL franchise in their city, therefore different reasons why a NHL team would prosper in each city can be mentioned. Each city has a ground for a successful NHL franchise or at least is viable to maintain a NHL franchise. The literature and data proved that the danger for NHL franchises lies in small market franchises in non hockey markets. Kansas City and Oklahoma City can be characterized as small market franchises in a non hockey market.

	Hamilton	Houston	Kansas City	Oklahoma City	Seattle	Winnipeg
Hockey Interest	2	4	6	5	3	1
Economic Prosperity	5	4	6	3	2	1
Metropolitan Status	3	2	4	6	1	5
Total	10	10	16	14	6	7

Table 8.4, Overall rankings

Based on the three correlated groups the rankings of tables 8.1, 8.2 and 8.3 are put together in one final ranking, table 8.4. Since average attendance is the only significant variable in each regression, Hockey interest is given more importance for major league success than economic prosperity and metropolitan status. The ranking that should show the most viable location for a NHL franchise based on the NHL location criteria is stated below.

1. Seattle
2. Winnipeg
3. Hamilton
4. Houston
5. Oklahoma City
6. Kansas City

Each city's strengths and weaknesses will be discussed briefly. Hamilton and Southern Ontario in particular will be discussed in the next chapter.

8.4.1 Seattle

Seattle will add a large market to the NHL in an area where the NHL density is fairly low. Seattle has a strong local economy with large multinationals and would open up a large market where people have more income to spend. For the NHL Seattle could be

interesting. On top of that, the city and the region have a history with hockey and are very active in junior hockey. However, the Seattle Supersonics situation might shine a different light on the situation. It is almost certain the Supersonics will leave Seattle. The city of Seattle and the State of Washington already invested heavily in the new Stadiums for its NFL and MLB teams, therefore the city might not invest in a new NHL team (Annala, 2007). Corporate Seattle proved it is not willing to help sustaining a NBA franchise. The regressions results on the other hand show that Seattle does well in each rating, plus its geographical location is the closest to the hockey markets of all US cities.

8.4.2 Winnipeg

The other Canadian location in this research, Winnipeg, does very well on all criteria. It has a stable prosperous economy and even for Canadian standards the center Prairie Provinces like Saskatchewan and Manitoba are hockey crazy. In the past the Jets have been successful and their arena is NHL ready. Winnipeg being the largest city in central Canada would be the most logical central Canadian location. However, the small size of the market could be a problem. Even though the regression indicated that the size of the metropolitan area is not significant, adding Winnipeg to the NHL would mean another Calgary, Edmonton or Ottawa. These three small market Canadian franchises have struggled in the past and continue to struggle fluxionally. Even though, these three Canadian franchises have all appeared in the last three editions of the Stanley Cup final, the road of survival in the NHL comes with a lot more bumps than strong large market franchises. Still Winnipeg has what it takes to host a viable NHL franchise, but it will most likely be one of the smaller teams in the NHL.

8.4.3 Houston

Houston is tied with Hamilton in the overall ranking, Hamilton is ranked higher because it is located in the largest hockey market, which scores better in the hockey interest category. Still many people advocate Houston as a viable market for a NHL franchise. Houston is the biggest metropolitan area and TV market in the United States without a NHL team. For an unexplained reason Texans like sports, all major league sports teams in Texas do well. Even the Dallas Stars are one of the stronger and richest franchises in the NHL even though it is located far from hockey country. However the fact that there is only one NHL franchise in Texas might explain Dallas' strong position. If Houston would get a NHL franchise, both teams have to compete for a market that is big enough for one team but might be too small for more than one team. A good example is Florida, which has two NHL franchises. Tampa Bay supported by its 2004 Stanley Cup victory

has a sound base for a stable franchise. The Florida Panthers languish near the bottom in every ranking, both competitively as well as financially. Houston's history in the WHA and the presence of an AHL team provides the people of Houston access to hockey and perhaps services the need. If an expansion or relocation NHL team would compete effectively with Houston's other more popular major league franchises remains questionable.

8.4.4 Oklahoma City

The temporarily presence of the NBA's Hornets stimulated the motivation for a major league franchise and also headed into a more basketball oriented approach. Oklahoma City already proved that it can support an NBA franchise and therefore it might be better to relocate a NBA team rather than an NHL team. Oklahoma City's support for its CHL team does show some hockey interest, however Oklahoma is desperately seeking a major league franchise, as it has none, and hockey is easily substituted for basketball or another sport, perhaps another sport might even be preferred as Oklahoma is a small market franchise in a non hockey market and relatively close to Dallas for the hardcore hockey fans. Adding Oklahoma City to the NHL would gain the NHL on the short run and most likely will wear out on the long run.

8.4.5 Kansas City

Kansas City proved itself to be one of the best bargainers for the Pittsburgh Penguins relocation beginning 2007. The city is still actively searching for a regular tenant. However, hockey wise Kansas City does not provide much for the NHL. It is another medium sized market and not located in a traditional hockey market, although there is some demand as Geddert and Semple (1987) showed. Again it would mean two NHL franchises in one state that can support one franchise but most likely not two. The St. Louis Blues have been in the NHL since the second expansion, which will leave Kansas City always the second team, as Missouri is not a hockey market. Additionally Kansas City does not excel in any particular field compared to the other cities. It has a decent size market and the economic numbers are all decent as well, but they do not offer any characteristics that the other cities are lacking. It would be a short term gain for the NHL, as the city desperately wants a regular tenant. Since Kansas City is also mentioned as the new location for a NBA team this could be in the NHL's disadvantage.

8.5 Chapter Summary

This chapter described how the respective cities rank on the variables used in this research. Having the only significant variable hockey interest has a higher importance for a successful hockey market. It is not surprising that the Canadian cities score the highest in this category. In the overall ranking Seattle and Winnipeg are the surprising numbers one and two, the cities that are the least active out of the six cities do well in each category. Hamilton is a good third and will be discussed in the next chapter. The rankings show that he NHL is the least benefited by adding Oklahoma City or Kansas City, while these two cities were very active in trying to relocate the Pittsburgh Penguins to their grounds. Still these rankings are not conclusive, since the regression results do not explain enough. But they do give an indication that the size of the market is not automatically the size of the population. When analyzing geographically the more desirable markets are still the hockey markets.

9. Southern Ontario and the Greater Toronto Area

This chapter focuses solely on Hamilton and Southern Ontario, including the GTA. The reason why in NHL relocation discussions Southern Ontario pops up every time, is because it is the most populated area in Canada and therefore the largest hockey market there is. Apart from Toronto, the two largest municipalities in Southern Ontario are Mississauga and Hamilton. Mississauga lies to close to Toronto, within the 50-mile radius and is part of the Toronto SMA. While Hamilton is conveniently located outside the 50-mile radius zones of both Toronto and Buffalo, and it is at the exact heart of the so called Golden Horseshoe serving the Niagara Peninsula better than Toronto. On top of that Hamilton has a ready to use arena that meets NHL standards and Mississauga has not.

A second team in the Toronto MSA could lead to a Clippers situation, where one team dominates the city's popularity and the other is struggling for survival. Perhaps an even worse one, as the Toronto Maple Leafs are, by far, the most popular team in the NHL and have always been in Toronto. This makes it virtually impossible for any team to settle in Toronto and win over the Torontonians. Within Southern Ontario Hamilton would make the best location, the franchise would operate as a regional team opposed to a city team. Buffalo might object more than Toronto, the Maple Leafs are an institute; they will have no problem with reaching sellouts. Buffalo on the other hand, has part of its market area on the Canadian side of the border. If Hamilton would get an NHL franchise, it is easier for the hockey fans to go to Hamilton and not go through time consuming customs to see a hockey game in Buffalo, plus nationalistic feelings might rise up to support a Canadian team over an American one. By adding Hamilton to the NHL, it would limit Buffalo to just Western New York, and lose most of its market area in Canadian Niagara. Even though Hamilton lies more than 50 miles outside of Buffalo, it might cause the Hamilton franchise to pay a compensation fee to Buffalo. If there would be a NHL franchise in Hamilton, there will be another franchise in a densely populated area with several NHL teams. Table 6.1 on page 48 shows that in the Los Angeles-Anaheim SMA and the New York-New Jersey SMA. The secondary teams have negative operating incomes. Still Anaheim has been far more successful than Los Angeles the past decade and the same goes for New Jersey versus the New York Rangers. It will remain a challenge to become a profitable franchise is such a region.

The Hartford Whalers, mentioned on page 37, would make a similar case study, although they moved away from a populated crowded hockey market to Raleigh, North Carolina. Their Hartford years compared with their Raleigh years could answer a few questions regarding how crowded hockey markets compare with single entity non hockey markets. Unfortunately this has not been studied yet. However, despite that the Carolina Hurricanes won a Stanley Cup in 2006, they still have low gate income and other revenues are low as well. The following season Carolina did not make the playoffs, which might show that it was an incidental success. Many voices openly question if the move, apart from winning the Stanley Cup, worked out well for the Whalers/Hurricanes organization. The American oriented Bizjournal.com pointed Hartford as the only viable open NHL market in the United States. Unfortunately Bizjournals only researched the United States, and did not mention Canada, regarding the parallels between Hartford and Hamilton. Hamilton's biggest surplus is its hinterland, the population, the economic activity and the interest in hockey. A limitation is that allocating Hamilton is in conflict with the current geographical strategy incorporated by the NHL, which aims to cover the largest possible geographical area winning over non hockey markets and focuses less on traditional hockey markets. Therefore the NHL might not give permission for a Hamilton franchise. Other weaknesses are that Hamilton itself is not an interesting location, all the strong assets lie in its hinterland and not in the city itself. Hamilton could become a second New Jersey. Opportunities are emerging rivalries with both Toronto as well as Buffalo, which will boost gate revenues and even TV ratings. Threats lie in the fact that Hamilton has to compete with these same two teams for its fan base. Both Toronto and Buffalo have been in the NHL for a long time, and it will be hard, especially in the beginning to win over loyal Maple Leaf and Sabres fans and be truly competitive with these two established franchises.

SWOT Analysis Southern Ontario/Hamilton:

Strength • Hinterland • Central position in the Golden Horseshoe Region • City is NHL ready	*Weaknesses* • Hamilton SMA size • NHL's geographical strategy
Opportunity • Local Rivalries	*Threats* • Toronto Maple Leafs • Buffalo Sabres

10. Conclusion and Constraints

This research was born from the idea whether or not Canada could sustain another NHL franchise, and if so, where in Canada would be the best location. Due to the recent past in NHL relocations other cities were included in this research as well. The answer to research question: *"Is the Greater Toronto/Southern Ontario region a viable market for NHL relocation?"* can be a simple yes, it is a viable market for relocation. This research has provided enough reason and indications that the Southern Ontario region can sustain another NHL franchise, with Hamilton as the preferred location. However, since the research was done more thoroughly by adding five other cities, how does Hamilton compare to these cities? The NHL will not just focus on one location when an expansion or relocation occurs, they will look at the broader picture and, like this research, investigate several location options. In the three regressions Hamilton did not come out as the best option in any of the regressions. In the final ranking, Seattle and Winnipeg were ranked higher. Does this mean that Hamilton is a lesser option compared to the other cities? No. The regression and ranking can only be used as an indicator, it does not explain enough to conclude whether a location is more viable than the other. For this research the literature provides a lot more information in determining a new NHL location.

Coming to an objective conclusion is hard as most literature is biased, however, the overall tendency is that the NHL's current strategy of southern and westward expansion does not work effectively. Especially in the south the NHL has difficulty winning grounds, even though two of the last three champions came from the South. These franchises remain problematic. Small market franchises such as Buffalo, Edmonton and Ottawa on the other hand fluctuate between the success and troubled years as well, but they have the advantage of their location in a hockey market and their attendance does not dangerously decrease like Nashville or Carolina. The Stanley Cup final series of 2007 illustrated the difference between a non hockey market and a hockey market. Both teams, Anaheim and Ottawa joined the NHL by expansion in the early 1990's. Both arenas sold out since it were the finals. The difference was that throughout Ottawa and Canada even it was noticeable that Ottawa played final, people who were not fortunate enough to be in the arena could watch the game at big screen at squares throughout the city, and if not there every bar would provide opportunities to not miss any minute of the game. While in Anaheim, the games were sold out, but anywhere else in the MSA it was not the first thing you would notice that the two best hockey franchises in the world are currently

playing there. Unfortunately for the Canadian hockey fans, Anaheim won the series and the Stanley Cup. This was celebrated with a celebration on the Arena's parking lot with more than 15.000 people (MSNBC, 2007). If Ottawa would have won, no doubt there would be a lot more people showing up and most likely there would be a lot more activities in the city (Globe and Mail, 2007b).

The NHL fails at winning over non hockey markets and should therefore return to its heartland Canada and hockey markets in the USA. That is where Hamilton has an advantage, in the centre of the most populated region and economic core of Canada. In fact all other five cities could sustain a NHL franchise, the true question lays in which city is in the NHL's best interest. And than Hamilton would probably be the best option, even though Winnipeg ranks higher in this research, by allocating Hamilton the NHL will return to its heartland, in a strong and large economic urban setting.

Still there are a lot of intangible and immeasurable factors determining whether or not any major league sports franchise will be successful at a particular location. The last couple of years wealthy owner or ownership groups have become vital for all NHL franchises. And place becomes of second order, it all depends on the intentions of such an owner. Some owners want a franchise in their hometown, others have shares in a stadium and arena and buy a franchise as their tenant. This factor has not been used for this research as it goes beyond location, but is still very vital. The latest news concerning franchise relocation, favors Hamilton. Canadian billionaire, Jim Balisilie, who made a bid to buy the Pittsburgh Penguins earlier in 2007, made a similar bid to purchase the Nashville Predators, and move them to Hamilton. Nashville's current owner, who is set to sell the Predators, has not declined nor accepted the bid yet. Kansas City appears to be the other serious candidate (TSN, 2007).

Thus Hamilton remains a premier candidate for a NHL franchise and it proves to offer a viable market and meets all the requirements needed. Not only that, but it has an owner willing to invest in the location and the franchise. If the NHL decides to relocate to Hamilton, it would mean a different course in strategy, and the NHL would admit its failure in its previous location strategy. Thus far, the biggest burden for Hamilton and Southern Ontario is the NHL and its failing location strategy.

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APPENIDICES

Appendix I: IIHF survey players 2005-2006 Season

IIHF Survey of Players
2005–2006 Season

FEDERATION*	PLAYERS				REFEREES		RINKS		PARTICIPATION	POPULATION
	Registered	Senior	Juvenile	Female	Male	Female	Indoor	Outdoor		
Andorra	83	38	41	7	0	1	1	0		71,201
Armenia	520	390	130	0	24	0	2	3	WS III, W18 Q	2,976,720
Australia	2404	1156	1248	240	166	18	20	0	WS II, W20 II,W18 II	20,264,082
Austria	31508	23916	6657	935	391	21	15	40	WS I, W20 I, W18 I	8,129,880
Belarus	3020	320	27005	0	90	0	12	0	WS, W20 I, W18	10,029,011
Belgium	1371	386	916	96	32	3	14	1	WS II, W20 II, W18 III	10,379,067
Bosnia & Herzegovina	260	80	180	0	7	0	1	3	W18 Q	4,498,076
Bulgaria	290	95	177	18	17	0	3	0	WS II, W20 III, W18 Q	7,385,367
Canada	552040	62083	441307	65951	24850	1739	3000	11000	WS,W20, W18	33,098,932
China	754	410	168	176	31	20	18	9	WS II, W20 II	1,330,989,321
Chinese Taipei	600	250	300	50	29	0	2	0		20,995,980
Croatia	607	140	467	53	15	0	2	3	WS I, W20 II, W18 II	44947490
Czech Republic	87130	50875	34676	1579	3180	139	152	22	WS,W20, W18	10,235,455
Denmark	4154	1816	2338	355	85	3	19	0	WS, W20 I, W18 I	5,450,661
DPR Korea	2780	480	1700	600	21	5	3	13	WS II	23,113,019
Estonia	1854	795	939	120	28	2	8	2	WS I, W20 II, W18 II	1,324,333
Finland	60811	22183	36161	2467	1781	48	220	38	WS I, W20 I, W18 I	5,231,372
France	17056	5605	1084	2862	83	7	128	25	WS I, W20 I, W18 I	60,876,136
Germany	28047	8369	17424	2254	169	11	158	49	WS I, W20 I, W18	82,422,299
Great Britain	8401	3647	3867	887	254	16	44	0	WS I, W20 II, W18 II	60,609,153
Greece	326	94	222	10	5	0	1	0		10,688,058
Hong Kong	143	58	85	47	6	0	3	0		6,940,432
Hungary	1672	534	1046	92	46	5	13	14	WS I, W20 I, W18 I	9,981,334
Iceland	608	138	398	72	18	4	3	0	WS III, W20 III, W18 II	299,388
Ireland	75	45	30	2	1	0	2	0	WS III	4,062,235
Israel	500	120	380	28	4	0	1	0	WS I, W18 II	6,352,117
Italy	7251	2556	4695	348	145	5	55	21	WS, W20 I, W18 II	58,133,509
Japan	19645	11853	6248	1508	884	76	130	49	WS I, W20 I, W18 I	127,463,611
Kazakstan	4716	537	4095	84	12	3	8	29	WS, W20 I, W18 I	15,233,244
Korea	1259	153	1028	78	37	2	44	0	WS II, W20 II, W18 I	48,846,823
Latvia	4348	2947	1300	101	190	25	16	5	WS, W20, W18 I	2,274,735
Liechtenstein	114	80	34	0	1	0	0	3		33,987
Lithuania	689	312	360	17	16	2	3	2	WS I, W20 III, W18 II	3,585,906
Luxembourg	320	150	160	10	20	0	2	1	WS III	474,413
Mexico	1144	246	864	38	21	3	9	0	WS II, W20 II, W18 II	107,449,525
Mongolia	840	480	360	16	12	0	0	12		2,832,224
The Netherlands	3450	1883	1360	207	106	16	15	0	WS I, W20 II, W18 II	16,491,464
New Zealand	1589	850	599	140	104	17	6	3	WS II, W20 II, W18 III	4,076,140
Norway	6768	2649	3787	332	377	10	30	4	WS, W20, W18	4,610,820
Poland	2075	305	1750	20	79	1	21	7	WS I, W20 I, W18 I	38,536,869
Portugal	43	38	5	0	5	2	1	0		10,605,870
Romania	2432	550	1800	82	59	5	4	17	WS II, W20 II, W18 III	22,303,552
Russia	77202	24794	52171	237	1068	17	142	3	WS,W20, W18	142,893,540
Serbia & Montenegro	814	186	628	0	17	1	3	1	WSII, W20 II, W18 II	10,832,545
Slovakia	9209	2125	6765	319	414	21	40	23	WS,W20, W18	5,439,448
Slovenia	766	138	549	79	47	2	7	3	WS, W20 I, W18 I	2,010,347
South Africa	1350	140	1170	60	7	5	5	0	WS II,W18 III	44,187,637
Spain	263	139	124	40	17	0	9	0	WS II, W20 II, W18 II	40,397,842
Sweden	65739	14531	47810	3398	1846	21	307	144	WS,W20, W18	9,016,596
Switzerland	25214	8202	16307	705	898	31	70	75	WS,W20, W18 I	7,523,934
Thailand	200	80	100	20	8	0	3	0		64,631,595
Turkey	520	230	210	80	34	26	2	0	WS III, W20 III, W18 III	70,413,958
Ukraine	3615	610	3005	0	68	0	9	4	WS, W20 I, W18 I	46,710,816
United Arab Emirates	195	85	100	10	8	0	3	0		2,602,713
USA	453299	86263	480000	53030	25304	1295	1800	300	WS,W20, W18	298,444,215

LEGEND:
(all tournaments from 2005- 2006 season)

WS IIHF World Championship
WSI IIHF World Championship, Division I
WSII IIHF World Championship, Division II
WSIII IIHF World Championship, Division III
W20 IIHF World U20 Championship
W20I IIHF World U20 Championship, Division I
W20II IIHF World U20 Championship, Division II
W20III IIHF World U20 Championship, Division III
* source 2006 CIA World Factbook

W18 IIHF World U18 Championship
W18I IIHF World U18 Championship, Division I
W18II IIHF World U18 Championship, Division II
W18III IIHF World U18 Championship, Division III
Please note: there were no World Women championships played in 2006 due to the Olympic Winter Games

Appendix II.A: Top 10 best expansion markets

City	Area's total personal income	Surplus for new team:	Best league for expansion team
1. Los Angeles, CA	$ 589.9 billion	$ 231.2 billion	NFL
2. Philadelphia, PA	$ 244.9 billion	$ 48.6 billion	MLS
3. Hartford, CT	$ 77.8 billion	$ 77.8 billion	NHL
4. Las Vegas, NV	$ 56.2 billion	$ 56.2 billion	NBA
5. Portland, OR	$ 86.5 billion	$ 48.1 billion	NFL
6. Oklahoma City, OK	$ 51.1 billion	$ 51.1 billion	NBA
7. Rochester, NY	$ 43.9 billion	$ 43.0 billion	MLS
8. Virginia Beach – Norfolk, VA	$ 52.2 billion	$ 52.2 billion	NBA
9. Northern New Jersey, NJ	$ 282.9 billion	$ 126.7 billion	MLB
10. San Bernardino – Riverside, CA	$ 89.4 billion	$ 89.4 billion	MLB

Appendix III.B: Top 10 over expanded markets

City	Area's total personal income	Shortfall in personal income	Major league teams
1. Tampa – St. Petersburg, FL	$ 75.6 billion	$ 82.3 billion	3 (NFL, NHL, MLB)
2. Phoenix, AZ	$ 116.4 billion	$ 79.9 billion	4 (NBA, NFL, NHL, MLB)
3. Denver, CO	$ 134.3 billion	$ 78.0 billion	5 (NBA, NFL, NHL, MLB, MLS)
4. Pittsburgh, PA	$ 92.8 billion	$ 65.1 billion	3 (NFL, NFL, MLB)
5. Kansas City, MO	$ 77.4 billion	$ 60.9 billion	3 (NFL, MLB, MLS)
6. St. Louis, MO	$ 104.8 billion	$ 53.1 billion	3 (NFL, NHL, MLB)
7. Milwaukee, WS	$ 75.7 billion	$ 51.9 billion	2 (NBA, MLB)
8. Cincinnati, OH	$ 72.1 billion	$ 50.1 billion	2 (NFL, MLB)
9. Buffalo, NY	$ 41.4 billion	$ 27.3 billion	2 (NFL, NHL)
10. Minneapolis – St. Paul, MN	$ 171.4	$ 24.9 billion	4 (NBA, NFL, NHL, MLB)

Appendix III.C: League thresholds

League	Total personal income minimum
MLS	$ 16.1 billion
NFL	$ 33.0 billion
NHL	$ 35.7 billion
NBA	$ 38.4 billion
MLB	$ 89.2 billion

- Modified from: http://www.bizjournals.com/edit_special/36.html

Appendix III: Relocations in the NHL

Rodney Fort's *Sports Economics*
Team Moves in the National Hockey League

YEAR	FRANCHISE MOVED:	RELOCATED TO:
1920	Quebec Bulldogs	Hamilton Tigers
1925	Hamilton Tigers	New York Americans (name change: Brooklyn Americans)
1930	Pittsburgh Pirates	Philadelphia Quakers
1934	Ottawa Eagles	St. Louis Eagles
1976	California Golden Seals (Oakland)	Cleveland Barons
1976	Kansas City Scouts	Colorado Rockies (Denver)
1978	Cleveland Barons	Minnesota North Stars (Minneapolis-St. Paul)
1980	Atlanta Flames	Calgary Flames
1981	Colorado Rockies	New Jersey Devils
1993	Minnesota North Stars (Minneapolis-St. Paul)	Dallas Stars
1995	Quebec Nordiques (Quebec City)	Colorado Avalanche (Denver)
1995	Winnipeg Jets	Phoenix Coyotes
1997	Hartford Whalers	Carolina Hurricanes (Charlotte)

Appendix IV: Correlation Matrix

Correlations

		MSAPopulation	AVGhouseholdIncome	AVGincomepcap	CostOfLiving	Corporations	UnemploymentRate	FanCostIndex	OtherSports	Revenue	TeamValue	Operating Income	Average attendance	Average Growth
MSAPopulation	Pearson Correlation	1	-,182	-,207	,790**	,669**	,108	,302	,931**	,092	,202	-,069	-,128	-,145
	Sig. (2-tailed)		,336	,271	,000	,000	,570	,105	,000	,628	,284	,716	,500	,444
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
AVGhouseholdIncome	Pearson Correlation	-,182	1	,709**	,060	-,034	-,072	,002	-,205	,199	,039	,295	,137	,393*
	Sig. (2-tailed)	,336		,000	,752	,876	,704	,990	,314	,293	,839	,113	,470	,032
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
AVGincomepcap	Pearson Correlation	-,207	,709**	1	,120	-,024	-,025	,013	-,113	,126	-,008	,287	,028	,221
	Sig. (2-tailed)	,271	,000		,527	,912	,894	,947	,582	,506	,968	,124	,882	,240
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
CostOfLiving	Pearson Correlation	,790**	,060	,120	1	,671**	,062	,266	,772**	,224	,249	,085	,057	,014
	Sig. (2-tailed)	,000	,752	,527		,000	,746	,156	,000	,235	,185	,654	,765	,940
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
Corporations	Pearson Correlation	,669**	-,034	-,024	,671**	1	,062	,231	,678**	,138	,253	-,004	-,008	-,057
	Sig. (2-tailed)	,000	,876	,912	,000		,772	,279	,001	,519	,233	,986	,971	,792
	N	24	24	24	24	24	24	24	21	24	24	24	24	24
UnemploymentRate	Pearson Correlation	,108	-,072	-,025	,062	,062	1	,247	,194	,387*	,465**	,455*	,320	-,186
	Sig. (2-tailed)	,570	,704	,894	,746	,772		,189	,343	,035	,010	,012	,085	,325
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
FanCostIndex	Pearson Correlation	,302	,002	,013	,266	,231	,247	1	,275	,384*	,460*	,166	,374*	-,107
	Sig. (2-tailed)	,105	,990	,947	,156	,279	,189		,173	,036	,011	,381	,041	,575
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
OtherSports	Pearson Correlation	,931**	-,205	-,113	,772**	,678**	,194	,275	1	,095	,202	,003	-,137	-,294
	Sig. (2-tailed)	,000	,314	,582	,000	,001	,343	,173		,643	,322	,987	,505	,145
	N	26	26	26	26	21	26	26	26	26	26	26	26	26
Revenue	Pearson Correlation	,092	,199	,126	,224	,138	,387*	,384*	,095	1	,951**	,850**	,630**	,289
	Sig. (2-tailed)	,628	,293	,506	,235	,519	,035	,036	,643		,000	,000	,000	,122
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
TeamValue	Pearson Correlation	,202	,039	-,008	,249	,253	,465**	,460*	,202	,951**	1	,754**	,588**	,098
	Sig. (2-tailed)	,284	,839	,968	,185	,233	,010	,011	,322	,000		,000	,001	,608
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
OperatingIncome	Pearson Correlation	-,069	,295	,287	,085	-,004	,455*	,166	,003	,850**	,754**	1	,517**	,188
	Sig. (2-tailed)	,716	,113	,124	,654	,986	,012	,381	,987	,000	,000		,003	,321
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
Average attendance	Pearson Correlation	-,128	,137	,028	,057	-,008	,320	,374*	-,137	,630**	,588**	,517**	1	,172
	Sig. (2-tailed)	,500	,470	,882	,765	,971	,085	,041	,505	,000	,001	,003		,364
	N	30	30	30	30	24	30	30	26	30	30	30	30	30
Average Growth	Pearson Correlation	-,145	,393*	,221	,014	-,057	-,186	-,107	-,294	,289	,098	,188	,172	1
	Sig. (2-tailed)	,444	,032	,240	,940	,792	,325	,575	,145	,122	,608	,321	,364	
	N	30	30	30	30	24	30	30	26	30	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix V.A NHL Attendance

City/Team	Capacity	2001-2002	Percentage	2002-2003	Percentage	Growth	2003-2004	Percentage	Growth	
Anaheim	17.174	12.002,10	69,88%	14.108,40	82,15%	12,27%	14.987,90	87,27%		5,12%
Atlanta	18.750	13.668,40	72,89%	13.476,50	71,88%	-1,01%	15.121,10	80,65%		8,77%
Boston	17.565	15.403,60	87,72%	15.029,20	85,56%	-2,16%	15.133,40	86,15%		0,59%
Buffalo	18.500	17.206,50	93,00%	13.942,60	75,37%	-17,63%	15.290,30	82,65%		7,28%
Calgary	20.000	15.718,70	78,59%	16.239,20	81,20%	2,61%	16.579,70	82,89%		1,69%
Carolina	18.176	15.509,00	85,32%	15.682,30	86,28%	0,96%	12.086,40	66,49%		-19,79%
Chicago	20.500	15.568,90	75,94%	14.794,60	72,17%	-3,77%	13.253,00	64,64%		-7,53%
Colorado	18.129	18.007,00	99,32%	18.007,00	99,32%	0,00%	18.007,00	99,32%		0,00%
Columbus	18.138	18.136,00	99,98%	17.744,40	97,83%	-2,15%	17.369,40	95,76%		-2,07%
Dallas	18.000	18.532,00	102,95%	18.532,00	102,92%	-0,03%	18.355,00	101,97%		-0,95%
Detroit	19.983	20.057,90	100,37%	20.058,00	100,38%	0,01%	20.066,00	100,42%		0,04%
Edmonton	17.099	16.592,90	97,04%	16.686,20	97,95%	0,91%	17.677,60	103,38%		5,43%
Florida	19.250	16.083,90	83,55%	15.428,10	80,14%	-3,41%	15.936,10	82,78%		2,64%
Los Angeles	18.500	16.756,20	90,57%	17.569,90	94,97%	4,40%	17.882,60	96,66%		1,69%
Minnesota	18.600	18.455,80	99,22%	18.470,50	99,30%	0,08%	18.531,10	99,62%		0,32%
Montreal	21.273	20.027,30	94,14%	20.672,80	97,18%	3,04%	20.555,30	97,08%		-0,10%
Nashville	18.000	14.548,70	80,82%	13.228,50	73,49%	-7,33%	13.168,30	73,15%		-0,32%
New Jersey	19.040	18.038,60	94,74%	14.859,00	78,04%	-16,70%	15.060,00	79,09%		1,05%
NY Islanders	16.297	14.789,00	90,74%	14.930,60	91,61%	0,87%	13.456,40	82,56%		-9,06%
NY Rangers	18.200	15.930,20	87,52%	18.148,00	99,71%	12,19%	18.080,50	99,34%		-0,37%
Ottawa	18.500	16.919,10	91,45%	17.049,50	92,16%	0,71%	17.758,60	95,98%		3,82%
Philadelphia	19.523	19.569,20	100,23%	19.158,90	98,14%	-2,09%	19.375,30	101,08%		2,94%
Phoenix	17.799	13.165,10	73,96%	13.229,40	74,32%	0,36%	15.469,30	87,00%		12,68%
Pittsburgh	16.958	15.649,20	92,28%	14.749,50	86,97%	-5,31%	11.877,10	70,03%		-16,94%
San Jose	17.496	17.420,40	99,56%	17.381,20	99,34%	-0,22%	15.835,60	90,50%		-8,84%
St Louis	19.022	18.968,20	99,71%	18.570,40	97,62%	-2,09%	18.560,40	97,57%		-0,05%
Tampa Bay	19.756	15.722,20	79,58%	16.628,20	84,16%	4,58%	17.820,30	90,20%		6,04%
Toronto	18.819	19.279,40	102,44%	19.157,20	101,79%	-0,65%	19.376,60	102,92%		1,13%
Vancouver	18.630	17.712,80	95,07%	18.396,30	98,75%	3,68%	18.630,90	100,00%		1,25%
Washington	18.277	17.341,20	94,87%	15.787,10	86,38%	-8,49%	14.720,20	80,53%		-5,85%

Appendix V.B Minor League Attendance

Team	Capacity	2002-2003	Percentage	2003-2004	Percentage	Growth	2004-2005	Percentage
Toronto	10.000			4.575,50	45,75%			
Hamilton	17.500	4.724,40	26,99%	4.899,90	27,99%	1,00%	5.758,40	29,47%
Winnipeg	15.015	7.037,80	46,87%	6.856,30	45,66%	-1,21%	8.702,40	57,95%
Houston	17.800	5.124,80	28,79%	5.253,40	29,51%	0,72%	5.608,40	31,50%
Oklahoma City	18.036	8.988,80	49,83%	8.763,90	48,59%	-1,24%	8.245,00	45,71%
AHL Average		5.679,40		5.533,90			5.926,90	
Kitchener	6.890	5.590,70	81,14%	5.904,90	85,70%	4,56%	5.911,30	85,79%
Mississauga	6.000	2.641,00	44,02%	2.903,90	48,39%	4,37%	3.739,30	62,32%
Oshawa	4.205	3.282,40	78,05%	3.219,30	76,55%	-1,50%	2.872,20	68,30%
Toronto	1.617	1.063,70	65,78%	1.004,40	62,11%	-3,67%	1.356,90	83,91%
Waterloo	4.312	2.326,70	53,95%	2.399,70	55,65%	1,61%	2.633,20	61,06%
OHL Average		3.709,10		3.737,70			3.956,20	
Seattle	15.177	4.600,00	30,30%	4.449,90	29,32%	-0,98%	4.394,90	28,95%
WHL Average		4.324,70		4.343,10			4.763,60	

Source: www.worldstadiums.com, http://www.mib.org/~lennier/hockey/leagueatt.cgi

Team	2005-2006	Percentage	Growth	2006-2007	Percentage	Growth	Average attendance	Average growth
Toronto	4.465,10	44,65%	-1,10%	3.798,40	37,98%	-6,67%	42,79%	-3,89%
Hamilton	4.942,10	28,24%	-1,23%	4.807,20	27,46%	-0,78%	28,03%	0,12%
Winnipeg	7.950,40	52,94%	-5,01%	7.600,20	50,61%	-2,33%	50,08%	0,94%
Houston	5.696,60	32,00%	0,50%	6.288,60	35,32%	3,32%	31,42%	1,63%
Oklahoma City	8.609,20	47,73%	2,02%	8.902,40	49,35%	1,62%	48,24%	-0,12%
AHL Average	5.395,70			5.420,80				
Kitchener	5.951,30	86,37%	0,58%	5.887,00	85,44%	-0,93%	84,89%	1,08%
Mississauga	2.995,70	49,92%	-12,40%	2.225,40	37,09%	-12,83%	48,35%	-1,73%
Oshawa	3.013,90	71,67%	3,37%	4.459,60	106,05%	34,38%	80,12%	7,00%
Toronto	1.009,10	62,40%	-21,51%	1.164,20	71,99%	9,59%	69,24%	1,55%
Waterloo	2.731,80	63,35%	2,29%	2.833,60	65,71%	2,36%	59,94%	2,92%
OHL Average	3.858,80			3.932,70				
Seattle	4.142,80	27,29%	-1,66%	4.019,30	26,48%	-0,81%	28,47%	-0,96%
WHL Average	4.604,80			4.673,30				

Appendix V.C: Attendances other leagues in case cities

City	NBA Attendance	Percentage	NFL Attendance	Percentage	MLB Attendance	Percentage
Toronto	17.999	88,66%	29.677	55,99%	28.422	56,30%
Hamilton			26.957	92,37%		
Winnipeg			26.988	91,74%		
Houston	16.705	91,12%	70.183	101,00%	37.318	91,10%
Kansas City			77.909	98,10%	17.158	42,10%
Oklahoma City	17.880	99,13%				
Seattle	15.631	91,42%	67.977	101,50%	30.626	64,10%

Sources: http://www.insidehoops.com/attendance.shtml
CFL: http://www.geocities.com/cfl_historical/CFL-Attendance.htm
NFL: http://sports.espn.go.com/nfl/attendance2006-07 season
http://sports.espn.go.com/mlb/attendance?sort=home_avg&year=2006&seasonType=2. 2006 season

CITY	MSA Population 1	Average Household income 2	Average per capita income 3	Cost of living 4	Corporations 5	Unemployment Rate 6	Arena Capacity / Year Built 7	Fan Cost Index 8	Other Major sports / Minor hockey 9
GTA	11.958.469								
Hamilton	716.200	55.901	19.911	131.7/ 114.0 US		5,90%	17,500 (1985)		NHL (2), NBA (1), MLB (1), NFL (1), AHL (2), MLS (1)
Winnipeg	706.749	64.846	24.749	134.7/ 116.6 US		4,90%	15,015 (2002)		AHL (1)
Houston, TX	4.669.571	37.483	21.845	90,3	7	5,50%	17.800 (2003)		NBA (1), NFLA (1), MLB (1), AHL (1), MLS (1)
Kansas City, M	1.776.062	38.414	22.405	95,5		5,70%	18,600 (2007)		NFL (1), MLB (1), NBA (1)
Oklahoma City,	1.083.346	36.347	21.687	91,8		3,70%	18,036 (2002)		NBA (1), CHL (1)
Seattle, WA	3.554.760	46.650	33.061	122,7	3	4,70%	15,177 (1995)		NBA (1), NFL (1), MLB (1), WHL (1)
NHL Cities									
Anaheim	16.373.645	49,622	20,868	151,1	1	4,60%	17.174	$205,77	NBA (2), MLB (2), NHL (1)
Atlanta	4.112.198	37,385	34,304	98,2	6	4,60%	18.750	$259,19	NBA (1), NFL (1), MLB (1)
Boston	5.819.100	45,892	30,456	135,4	4	5,20%	17.565	$309,22	NBA (1), NFL (1), MLB (1)
Buffalo	1.170.111	28,544	17,095	96,3		5,40%	18.500	$185,90	NFL (1)
Calgary	1.107.200	61.740	32.019	141.3/ 122.3 US		3,20%	20.000	$246,53	WHL (1)
Carolina	1.187.941	47,878	28,854	97,7	3	3,70%	18.176	$170,61	
Chicago	9.157.540	40,656	23,162	130,4	12	5,10%	20.500	$239,04	NBA (1), NFL (1), MLB (2), AHL (1)
Colorado	2.581.506	43,777	27,676	104,8	1	4,70%	18.129	$235,91	NBA (1), NFL (1), MLB (1)
Columbus	1.540.157	40,437	21,982	101,7	1	4,90%	18.138	$230,98	
Dallas	5.221.801	38,125	23,205	93,9	7	4,60%	18.000	$222,94	NBA (1), NFL (1), MLB (1)
Detroit	5.456.428	27,871	14,573	107,5	8	8,00%	19.983	$261,51	NBA (1), NFL (1), MLB (1)
Edmonton	1.050.000	59.135	27.803	136.5/118.2 US		3,90%	17.099	$246,10	
Florida	3.876.380	24,031	17,165	111,5	3	3,30%	19.250	$224,69	NBA (1), NFL (1), MLB (1)
Los Angeles	16.373.645	40,682	22,466	155,8	8	4,60%	18.500	$262,78	NBA (2), MLB (2), NHL (1)
Minnesota	2.968.806	38,731	22,533	109,3	6	4,70%	18.600	$282,92	NBA (1), NFL (1), MLB (1)
Montreal	3.663.000	48.714	27.569	125.6/ 108.7 US	2	8,40%	21.273	$284,20	
Nashville	1.231.311	42,298	24,561	95,1	3	4,20%	18.000	$224,82	NFL (1)
New Jersey	21.199.865	26,309	13,914	134,6	5	4,70%	19.040	$309,68	NBA (2), NFL (2), MLB (2), NHL(2)
NY Islanders	21.199.865	41,509	25,751	160,4	22	5,30%	16.297	$255,77	NBA (2), NFL (2), MLB (2), NHL(2)
NY Rangers	21.199.865	41,509	25,751	216	22	5,30%	18.200	$280,00	NBA (2), NFL (2), MLB (2), NHL(2)
Ottawa	1.158.300	66.872	33.027	132.4/ 114.6 US		5,20%	18.500	$242,76	OHL (1)
Philadelphia	6.188.463	30,631	17,867	123,2	4	4,80%	19.523	$304,72	NBA (1), NFL (1), MLB (1), AHL (1)
Phoenix	3.251.876	41,025	22,039	99,2		3,90%	17.799	$198,49	NBA (1), NFL (1), MLB (1)
Pittsburgh	2.358.695	31,910	21,509	94,4	1	5,50%	16.958	$216,96	NFL (1), MLB (1)
San Jose	7.039.362	31,910	30,290	170,8	7	4,70%	17.496	$219,02	NBA (1), NFL (2), MLB (2)
St Louis	2.603.607	30,389	20,436	100,7	3	5,40%	19.022	$237,17	NFL (1), MLB (1)
Tampa Bay	2.603.607	38,079	23,958	95,7	2	3,60%	19.756	$265,09	NFL (1), MLB (1)
Toronto	5.406.300	52.195	33.537	130.7/ 113.1 US	4	6,60%	18.819	$265,81	NBA (1), MLB (1), AHL (1), OHL (1)
Vancouver	2.236.100	48.803	29.548	28.1 / 110.9 US		4,40%	18.630	$300,47	WHL (1)
Washington	7.608.070	46,574	36,893	140	1	6,30%	18.277	$230,61	NBA (1), MLB (2), NFL (2)