

SALARY DETERMINATION IN THE NHL: THE IMPACT OF
CULTURAL, ECONOMIC AND POLITICAL FACTORS ON
EXPATRIATE SALARIES.

by

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SALARY DETERMINATION IN THE NHL: THE IMPACT OF CULTURAL,

ECONOMIC, AND POLITICAL FACTORS ON EXPATRIATE SALARIES

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ABSTRACT

The purpose of this study was to explore the impact of national characteristics on the compensation levels of expatriates from transitional economies. The National Hockey League (NHL) was used as a sample frame because it provides both Russian and Czech subjects. North American and European players were used as a control group. It was hypothesized that the socio-cultural, economic, and political factors in Russia and the Czech Republic would have a negative impact on the level of salary accepted by players from these two countries. A mail survey was used in an attempt to confirm that national characteristics were involved in the decision making process. A poor survey response made statistical analysis impossible. However, pooled time series regression procedures were used to test the influence of being Russian or Czech had on their NHL salaries. The players' age, position, round in which they were drafted, their team's total payroll, and individual performance measures were used as control variables. Five samples were utilized to test the research hypotheses. The results of the regression analyses showed that there was a negative effect on salary for Russians and Czechs over a three year time frame. This result supports the hypothesis that players from Russia and the Czech Republic will experience salary levels that are lower than Western Europeans and North Americans when first entering the NHL. Results of regressions that tested Russians and Czechs separately against North American and Western European players showed that the negative impact on Czechs is greater than the negative impact on Russians. Over a five year time period, there was no significant differences in the salary levels of Russian and Czech players compared to all other nationalities suggesting that pay equity is achieved after players have signed more than one contract. In general, the results of the regression analyses suggest that the model used to derive the hypotheses is effective when used to determine the salary levels of Russian and Czech hockey players in the NHL. However, future research needs be done on other expatriate professionals from Russia and the Czech

Republic and expatriates from other countries in order to determine generalizability of the model.

Dedication

This thesis is dedicated to the past, present, and future players of the National Hockey League and to the memory of Jon Furberg.

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Chapter 1: Introduction

The fall of communism in Czechoslovakia in 1989 and the Soviet Union in 1991, has resulted in a complex series of events during the transition to market economies: "Transformation, although defined in purely economic terms with privatization at its core, is a complex process which incorporates all the cultural, economic, political and social institutions found in a country" (Privoda and Savitt, 1995, p. 60). In Russia, failure to accurately anticipate workers' reactions to transition has led to labour unrest and declining productivity. Researchers have proposed that some of these problems resulted because of the "...underestimation of the significance of the activation and development of human resources and of increasing the motivation to work" (Gauzner, Ivanov, and Mikhina, 1992, p.45). However, internal issues are not the only factors contributing to labour problems in transitional economies: workers that are highly skilled are leaving for higher paying jobs in Western countries (Lenorovitz and Rybak, 1993).

There are numerous opportunities for citizens of transitional economies to exercise their freedom to move to areas of the world where they can demand standards of living and compensation that are the norm in Western economies. Nowhere is this more evident than in professional sports. Prior to the dissolution of the USSR, athletes either defected or were released (after they had reached a stage that they were close to retiring from international competition) and made their way to the West in order to make their livings as professional athletes, coaches, or 'legends' who do exhibitions.

Hockey players are some of the most well known athletes who have chosen to come to North America to work. The first Soviet trained player to play in the National Hockey League (NHL), Viktor Nechaev, appeared only briefly for the Los Angeles Kings in the 1982-83 season (Dryden, 1988). Following Nechaev was the first Soviet national-team player to perform in the NHL, Sergei Priakin, who played for the Calgary Flames in 1988 (McFarlane, 1988). In 1974, the first Czech players Vaclav Nedomansky and Richard Farda defected (Chere, 1990). By 1996, more than 16 percent of all players in the NHL were Russian or Czech (NHL Public Relations, 1996).

Impact on Russia and the Czech Republic

This influx of players from Eastern Europe has enabled NHL expansion by increasing the possible number of players, while maintaining the standard of play in the league (Business America, 1993). One possible problem that arises for Russia and the Czech Republic is that they are losing their most talented players and may not be able to develop viable markets for professional hockey. The importance of these markets is that they are representative of the type of service industries that contribute to Western economies.

At this point in time "...[the] ratio of material production to the service sphere in Russia (roughly 65:35) is the reverse of the ratio in developed Western countries" (Gauzner, 1993, p. 25). As production technologies are updated, Russia will need to

develop its service sectors in order to avoid higher unemployment and to stimulate the economy (Gauzner, 1993). As the economic situation in Russia stabilizes and incomes increase, the revenues from sports entertainment in Russia have the possibility to surpass the revenues generated in North America as the market for Russian hockey is several times the size of the NHL. Specifically, while the average team in North America has an estimated television viewing audience of 4.2 million, the Moscow Penguins team has an estimated audience of 150 million (Baker and Levine, 1993).

Impact on the NHL

If Russia and the Czech Republic are able to achieve North American conditions in terms of professional hockey leagues, the NHL will have to compete for players that no longer need to leave their home countries in order to gain a higher standard of living. This means that the players that the NHL has depended upon to fill the spaces created by expansion, while maintaining the high standard of play, may demand even greater compensation for coming to North America.

This scenario has already developed with Western European players. For example, the Vancouver Canucks and Swedish defenceman, Mattias Ohlund, were "...[not] able to come to contract terms" in 1996 (Hockey News, 1997, p. 20). Ohlund remained in Sweden until the 1997 season start, by which time he had negotiated a salary that was higher than the original offer by the Canucks.

Purpose of the Study

The purpose of this study was to explore the relationship between the national characteristics of countries that are experiencing economic transition and the salaries of expatriates from these countries. This was done by examining players' salary data from the 1992-93 to 1996-97 seasons to determine if the compensation of Russians and Czechs reflects an opportunity cost for playing in the NHL. In particular do they accept salaries that are lower than North American or Western European players so that they can work and live in North America? To develop an understanding of how the political, economic, and cultural factors of Russia and the Czech Republic impact the salaries of Russian and Czech players in the NHL, a survey of the Czech and Russian players was conducted. The specific national factors that affected these players at the time of their decision was not discovered. However, general national differences are presented.

Content Overview

A study focusing on the NHL is dissimilar to most organizational research. There is very little labour mobility and, relative to other professions, there are a small supply of players with the skill level necessary for this profession. However, the traits of these players is similar to other highly skilled professionals. To assist the reader in understanding the context of this study the remainder of this chapter will present a

comparison of the study subjects to other populations, explain the employment system in the NHL, and review the current collective bargaining agreement.

Similar Populations

Professional Athletes

The context of this study is not unique to professional hockey players. Other professional athletes, such as figure skaters and basketball players have left nations that are experiencing transitions in order to pursue careers in North America. Similar to the Russian and Czech hockey players, effects of culture, political and economic stability may affect the salaries of expatriates from other areas of the world who play in North America. For example, there is a large percentage of South and Central Americans whose home country characteristics may have played a part in their salary levels in Major League Baseball.

Other Skilled Professionals

Highly skilled athletes are attracted to North America because they are able to obtain higher incomes and standards of living, have greater access to goods and services, and avoid the political and economic turmoil of transition. These benefits that attract athletes will also attract other highly skilled professionals. Entertainers, such as ballet dancers, artists, or scientists from Russia or the Czech Republic are similar to highly skilled athletes. Because the demand for their skills is higher than the supply, they have the opportunity to earn large professional incomes } by moving to North America.

The most noticeable difference between professional athletes and other occupations is the restricted mobility faced by athletes and the huge increases in their successive contract amounts. Players in the NHL face severe mobility restrictions and large increases in their salaries once they have signed their second contract. The 1994 collective agreement between owners and the National Hockey League Players' Association (NHLPA) was the first to include unrestricted free-agency (no compensation to the team that the player is leaving). However, free-agency does not come into effect until the player is of age 32 or older and has played at least 40 games per season for four years. This means that the players have very little mobility: where they play is dependent on being traded by the team that holds their contract. In addition, because their initial contracts are between two and three years, highly skilled players, who have proven themselves in the NHL, experience a significant pay increase in their second contract which makes them unique when compared to most employees.

National Hockey League Background

League Structure

The National Hockey League is currently comprised of 26 teams that compete in cities across North America. Players are drafted from junior levels and, depending on their age and skill level, may proceed to the NHL without playing for a professional minor league team. Most teams have farm or franchise organizations in the American Hockey League or the International Hockey League that are for the development of younger players. A player drafted in North America may remain in junior hockey and,

if they do not reach an agreement on contract terms within two years, re-enter the draft. Players drafted in Europe can't go back into the draft but may become restricted free agents after two years. In addition, European players can be drafted from any level (including professional leagues).

Athletes that would be considered professional in North America were not considered so under communist regimes. All sports were considered non-profit and players were categorized as amateurs (Medish, 1991).

Collective Bargaining Agreement and Compensation System

The National Hockey League Players' Association (NHLPA) is the exclusive bargaining representative for all players employed in the NHL. Formed in June of 1967, the NHLPA "...is governed by an Executive Board made up of a player representative from each of the 26 teams" in the NHL (NHLPA, 1997). The players did not seek recognition through the Canadian Labour Relations Board because the owners "...agreed that a player would not be unfairly treated because of membership in the NHLPA and they also agreed to recognize the Players' Association as long as it represented more than two-thirds of the active players in the NHL" (NHLPA, 1997). In 1975, the first comprehensive Collective Bargaining Agreement was signed (all previous agreements were adoptions of the Player-Owner Council¹ meeting minutes).

¹ The Player-Owner Council was formed in June, 1967. The Council consists of the player representatives and the Executive Director of the NHLPA and ten owners. Meetings are held twice a year for the purpose of "furthering the positive labour relations between the players and team owners" (NHLPA, 1997, p.2).

The most recent collective agreement, signed in 1994, included a rookie salary cap and unrestricted free-agency for the first time in the league's history. Unrestricted free agency, as discussed previously, provides more labour mobility, however, because a player must be at least 32 years of age in order to participate, players will spend the majority of their careers classified as restricted. The rookie salary cap was implemented because of the "...recent rash of high priced rookie deals that owners claimed could have a domino effect on veterans' salaries" (Cimini and Muhl, 1995, p.76). The cap was set at US\$850,000 per year, increasing by US\$150,000 per year until a maximum of US\$1,075,000 is reached. Rookies between ages 18-21 are subject to the cap for 3 years, 22-23 year olds are subject for 2 years, and 24 year olds 1 year (Hockey News, Jan 27, 1995). This cap includes "...signing, reporting, and other nonperformance bonuses, which may not total more than 50 percent of the established cap" (Hockey News, Jan 27, 1995). However, performance bonuses are not included. The minimum salary for any player is US\$125,000 during the 1995-1998 seasons and increases to US\$150,000 in 1999. This minimum salary is much lower than the salary of the average player, i.e. the average salary for the five year period tested in this study was US\$832,000.

Development of Players in Russia and the Czech Republic

In comparison to the NHL average, players in Russia and the Czech Republic earn considerably less: the average 1993 income for a player in Russia was US\$7,000 (Baker and Levine, 1993). This lower income does not include other benefits which organizations in communist countries provide employees, such as housing and food

(Linz, 1995; Schneider, 1993; Brown, 1995). Even with these additional benefits that the Czech and Russian players receive, the salary differences are immense. Given the income differences, it is understandable why highly skilled players prefer to play in the NHL.

For the Russian and Czech players, their salaries were not entirely their own: when they first came into the NHL (1988-1991) players were required to pay a percentage of their salary to their home country government (Adams, 1995). This amount was in addition to taxes paid in the country in which they were living. Players from transitional economies are no longer required to obtain permission from, or release part of their salary to, their national governments in order to play in the NHL. However, in order to assist in the development of future players from Russia, and to compensate the Russian Hockey Federation for the athletes that have already been trained, the NHL makes a payment for each Russian player that is signed to an NHL franchise. The amount of the transfer payment is based on the player's age and draft round that they are acquired (Adams, 1995). Amounts range from US\$200,000 to US\$450,000 (See Appendix 1). These transfer payments are similar to agreements made with junior leagues in North America and leagues in the Czech Republic². These agreements between hockey organizations are intended to promote the continued development of young players (Adams, 1993).

² In order to promote the development of future players, the NHL makes a payment to the leagues that a player has been drafted from.

Summary

Although agreements between hockey organizations exist, they are limited to draft eligibility, minimum salaries and transfer payments. No effort is made on behalf of the players to establish equitable wage rates. Players are responsible for finding their own representation (usually agents) for salary negotiations. An individual player must determine what he believes to be his own worth, therefore, the values, beliefs and knowledge of the player will affect the salary that is accepted. Because NHL players come from countries with different cultural, economic and political situations, their first contracts will consist of salary levels that are not completely dependent on their performance.

Chapter 2: Theoretical Framework

Chapter Overview

This chapter will review previous research on salaries in the NHL and present a theoretical model of the factors that will affect an expatriate's salary. The research relating to the NHL has differentiated between English speaking Canada, Quebec, and the United States. These studies have treated each of the three areas as distinct labour markets.

Each section of the theoretical model: cultural, economic, political and organizational elements, will be discussed and comparisons between Russians, Czechs, and North Americans will be made. Although each country's cultural identity is pluralistic, for the purposes of this study, Russians and Czechs will be treated as distinct national groups and characteristics of these groups will be discussed in general rather than specific terms. Canadians and Americans will be treated as one group: North Americans. There are two reasons for not following the classifications that were used in previous studies. First, the cultural, economic and political differences between the two nations are not as distinct as those of the Russians and Czechs. Secondly, the mobility of players between the two nations is great, thereby, making it difficult to separate the influences of either country's individual characteristics. A brief discussion of motivation will be included to explain how the national characteristics translate into behavior.

NHL Salary Research

Previous research on salaries in the NHL assumed that differences in pay were the results of discrimination (Jones and Walsh, 1988; Kahn, 1991; Longley, 1995). Factors such as employer prejudice, co-worker discrimination, or customer preferences (Kahn, 1991) were accepted as the causes of the discrimination. However, these studies failed to take into consideration that players from specific regional areas may accept lower salaries because their total compensation includes the benefits of living in a more preferable location. For example, Longley (1995) found that defencemen native to Quebec were paid salaries below those of English speaking Canadian defencemen when they were signed to Canadian teams outside of Quebec. This study, however, failed to consider the economic and political troubles in Quebec and that the Quebec born players may have accepted lower salaries in exchange for better opportunities such as a more stable environment and remaining in Canada.

Several other factors have been shown to be important. Canadian players have accepted lower salaries than they could have commanded so that they could remain in Canada (CBC, 1997). Cultural studies have shown that monetary rewards are not always given the highest priority by an individual.

These contrasting views of compensation are evident in other cultures. It is well documented that North American employees who are given international assignments will expect higher wages to work in other parts of the world, especially if there is perceived danger or the cultural differences between the host country and

North America are great (Stone, 1986; Helms, 1995). However, no research has been done to examine the reverse scenario; for example, Are expatriates from countries where there are political and economic problems willing to accept lower salaries?

International Human Resource Management Models

Research has been done on Human Resource Management (HRM) issues in the Czech Republic and Russia (Welsh, Luthans, Sommer, 1993; Arthur and Bennett, 1995; Tung and Havlovic, 1996; Cyr and Schneider, 1996). These studies have not examined the compensation of expatriates from former Eastern block countries, rather, these theoretical models have been used to explain compensation practices within Russia and the Czech Republic. For the purposes of this study, these models have been adapted to explain compensation practices for expatriates in North America.

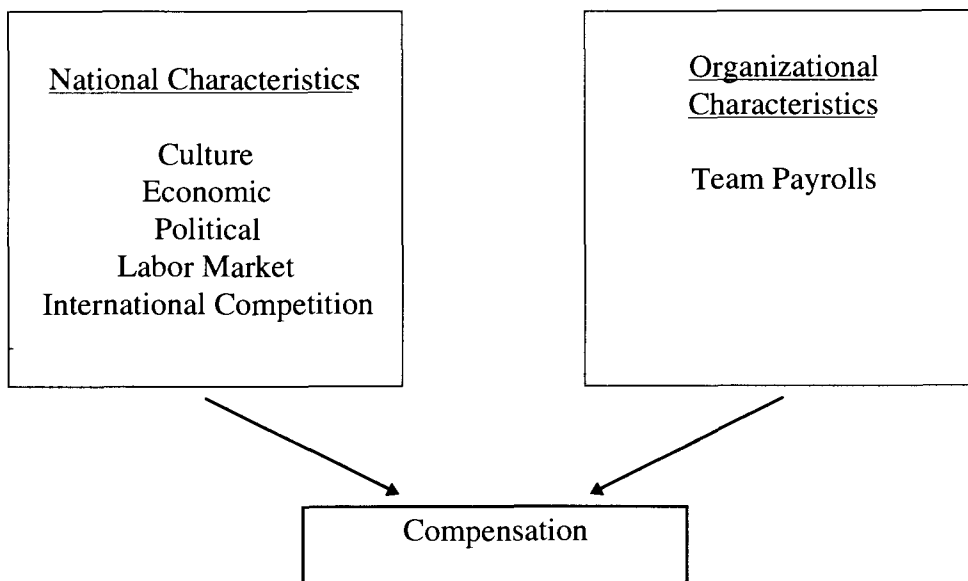
Saha's model of HRM Practices

The model to be discussed was first presented by Saha (1993) and built upon by Tung and Havlovic (1995). It is a "...model of international [Human Resource Management] HRM which considers HRM practices as a dependent variable influenced by two sets of independent variables (national environment and culture; and organizational culture and characteristics" (Tung and Havlovic, 1995, p. 2). The national environment and cultural factors are comprised of: economic; political; social and cultural environment; labour market; and international competition variables. Tung and Havlovic identified seven HRM areas that were to be investigated. These included

recruitment, selection, training and development, benefits administration, compensation administration, payroll, collective bargaining, labour relations, occupational safety and health, and security (1996, p.10).

Using this framework, the model presented in Figure 1 depicts the variables that will impact NHL expatriates' salaries. The compensation policies used in an organization are results of the socio-cultural, economic, political, labour markets and international competition factors affecting a nation and the organization's characteristics.

Figure 1: International Human Resource Model



Adapted from: Saha, Sudhir Kumar (1993) *Managing Human Resources: China vs. The West*, Canadian Journal of Administrative Sciences, vol. 10, no. 2, pp. 167-177.

Organizational Characteristics

The organizational characteristic of NHL franchises that will be investigated is the market within which the team operates. Longley (1995) demonstrated that the market can have a negative impact on an individual's salary. Each city within which a team operates has a limited potential fan base and, therefore, revenue. This means that individual teams have differing abilities to pay their athletes. Other human resource practices will not be investigated because they are similar throughout the NHL. As discussed in Chapter 1, all players and teams are under the same collective bargaining agreement and draft regulations, and each team organization operate under a similar organizational structure (For example, each team has a Head Coach and coaching staff, a General Manager and operations staff, and a President and Board of Directors). Contract negotiations are usually conducted by the General Manager or the hockey operations staff who "...have a large and direct influence on the salaries paid to their team players" (Longley, 1995, p. 419). Differences in business practices are due to the characteristics and preferences of the individuals controlling the operations. Therefore, differences in organizational characteristics can be seen as the result of individual's impact of the organizational cultural rather than structural or systemic differences.

As a result of the organizational differences being cultural in nature, it is assumed that the organizational characteristics will have little or no impact on an expatriates expected level of compensation. This is because corporate culture may modify the behavior of an individual "...but will have little impact on the underlying

assumptions that are embedded in the national culture" (Schneider, 1988, p. 233).

Thus, the environment of the country from where the expatriate is from becomes paramount in creating their salary expectations.

Cultural Characteristics

Russia

The Russian culture has been greatly influenced by the physical characteristics of its land (Lewis, 1996; Medish, 1991). The geography and harsh climate created a culture where Russians found it necessary to work together to survive and, as a result, they developed a hostility to outsiders. Vastness separated, and prevented information from reaching, many of its people (Lewis, 1996). This physical isolation translated into cultural isolation. During the Mongol invasion of Russia in the thirteenth century to sixteenth centuries, Russia fell behind Western Europe which was going through the Renaissance and Reformation (Medish, 1991). By the end of the 1400's, the Tsarists had come to consider Russia a subcontinent in itself (Medish, 1991). This perception remained throughout the era of the Russian Empire, despite invasions by the Poles (1600's), the Swedes (1709), Napoleon (1812), and the German invasion in WWI (Medish, 1991)

The Union of Soviet Socialist Republic (USSR) was established by Lenin (Medish, 1991). This was not the first incarnation of these nations: they "...were captive nations of the Russian Empire before the 1917 Revolution" (Medish, 1991, p.33). Because they have had control of other states throughout their history, "the

Russian people have not yet entirely come to see themselves as a nation, and therefore have not fully developed a sense of nationhood" (Evans, 1994, p. 29). From the time of the Tsars when "...the state was seen primarily as an extension of the authority of the Tsar" (Evans, 1994, p. 29):

[Russians] with higher levels of education and influence, who might have been the leaders in the dissemination of nationalistic ideas, were encouraged to think of themselves as members of the dominant ethnic group within the Russian empire. But they were at the same time discouraged from regarding the state as an extension of the authority of the Russian nationality. (Evans, 1994, P 31)

This was also the case under Soviet rule when Russians were encouraged to think of themselves as part of the USSR and not Russian. A survey conducted in the early 1990s indicated that a majority of the Russians living in other parts of the union "...thought of their homeland not as Russia or the republic in which they lived, but in the Soviet Union as a whole" (Evans, 1994, p.33).

Although the Soviet regime had an impact on the Russian culture, some cultural characteristics have been engraved over centuries. Russia had been communist for 70 years, but has been Russian Orthodox for 1000 years. Both "...Tsarist and Soviet Rule were facilitated by the collective, submissive, self-sacrificial, enduring tendencies of the sentimental romantic, essentially vulnerable subjects under their sway" (Lewis, 1996, p. 230).

The historical confusion of nationality and autocratic rule has led to strong connections and loyalty to family and not the state: "...[it] is a basic cultural concept that man's first duty is to himself and his family" (Tongren, 1995, p.3). They have a distrust of authority after years of secret police, "...not just in KGB times, but since

the days of Ivan the Terrible, in the sixteenth century..." (Lewis, 1996, p. 232). As a result, the Russian people have been described as suspicious, secretive, and passive (Lewis, 1996; Medish, 1991). In addition, due to shortages in basic goods "...economic juggling has been a way of life for over seventy years, and the successful juggler is admired rather than prosecuted" (Tongren, 1995, p. 3). Russians practice petty corruption (Lewis, 1996) in order to provide for themselves and their families.

These cultural characteristics carry over to employment situations. In situations where they feel that they are not being compensated fairly, Russians will put in very little effort. One Russian worker described the compensations and effort relationship with the phrase: "They pretend to pay us and we pretend to work" (Linz, 1995, p. 426). This does not mean that all Russians have a poor work ethic. As previously discussed, Russians are concerned with providing for themselves and their families and they will work extremely hard in circumstances where they believe they will be rewarded (Linz, 1995). Russians do believe that they are deserving, i.e., they are grandiose in thinking and see themselves as great powers (Lewis, 1996).

Czech Republic

The history of the Czech people have been closely tied to Western European nations (Tung and Havlovic, 1996; Herman, 1975). Part of the Austro-Hungarian Empire until 1918, when, at the end of WW1, the Czechs declared independence (Herman, 1975). It remained a free state until the Nazi invasion circa 1938 after which time, the Czech people came under the influence of the Eastern Communist States. This produced a nation that was on the one hand, falling behind Western European

development in service economies, on the other, further ahead of the East in its industrial development.

"Since 1948 [the Czech Republic's] politics have been dictated from the East, while its economic structure and cultural traditions are those of the West and its political clock has long been about 100 years ahead of Moscow's. The country's early industrial development produced a well-organized working class in the second half of the nineteenth century" (Herman, 1975, p 2).

This unique position has given the Czech people a sense of nationalism that is not found in Russia. They are a people who "...display a strong sense of Czech identity, a feeling that they ought to take control of their own destiny" (Soulsby and Clark, 1996, p. 244).

The Czech attitudes toward work are similar to the Germans (Tung and Havlovic, 1996) and corruption has not become a serious problem as it has in Russia (Applebaum, 1994). Although different from the Russians in that they have adopted many Western European characteristics, they have also been under communist rule and show traits similar to other regions that have been exposed to a planned economy. Specifically, they are collectivists and demonstrate a distrust of outsiders and authority (Soulsby and Clark, 1996).

Russians and Czechs are collective in nature, distrust authority, and are cautious. In contrast, North Americans are trusting, individualistic, and risk takers (Lewis, 1996). Unlike North Americans, the Russians have a poorly developed sense of national identity. Similar to North Americans, the Russians have concerns for status and are grandiose in their thinking (Lewis, 1996). The Czechs have a strong sense of national culture and a strong work ethic.

Political Environments

Politically, Russia has been tied closely to the USSR. The "...Russian Republic was denied many of the institutions which accompanied union republic status in all other cases. Unlike each of the other union republics of the USSR, the Russian federation had no separate Communist party organization, nor did it have its own Academy of Sciences, KGB, or Television broadcasting channel" (Evans, 1994, p. 33). Not until President Yeltsin did the interests of Russia come to be regarded as different from those of the USSR: Yeltsin "...adopted a perspective that stressed the distinctive interests of the Russian Republic within the Soviet political system and had persistently sought to expand the autonomy of his republic at the expense of the authority of the Central Communist Party" (Evans, 1994, p. 35). Not only did the political structure contribute to the confusion regarding Russian nationalism that was discussed previously, it had an impact on transition policies.

During the transition from command economies, one of the most significant policy differences between the Czech Republic and Russia pertained to de-communization projects, which referred to as lustration (Applebaum, 1994). Russia "...privately negotiated privatization projects, which were, therefore, more easily corrupted" (Applebaum, 1994, p. 10). This gave ex-communists the opportunities to remain in positions of power. The result has been an active communist party creating opposition to market reforms: "Links between ex-nomenklatura capitalists and ex-communist politicians remain intact, creating a ruling class that holds power in several spheres, with little room for real competition in political or economic debates" (Applebaum, 1994, p. 11). The Czech Republic has avoided opposition to reforms and a resurgence of a communist party. They have had an open system of voucher

privatization (Applebaum, 1994) and have transferred 80% of the economy's assets to private hands (Brown, 1995).

The political stability of North America contrasts sharply to Russia and the Czech Republic. Throughout the twentieth century the governments of Canada and the United States have not had any changes as drastic as the recent transitions of the former Czechoslovakia and former USSR. Countries in North America have not experienced the broad spectrum of political ideologies that have influenced Russia and the Czech Republic; for example, elected parties in North America have been supporters of an open market system tempered by moderate social policies.

Economic Environments

Analyses of transitional economies have shown that "...competitive forces emerge quickly in the transitional process when markets are structurally conducive" (Hersh, Kemme, and Bhandari, 1994, p. 365). The Czech Republic's market structure has been more conducive because of privatization: "...massively privatized state property" (Svejnar, 1996, p. 123). Blanchard (1996) states that, the "...countries where decline in output has been largest are also the countries where restructuring and output growth are slowest" (p. 117) as they have more opposition to restructuring because of the initial declines. This has been the case in Russia where political opposition has hindered restructuring. The Czechs, on the other hand, have a "...long industrial tradition and highly skilled labor force [which made them] one of the most highly developed command economies in Eastern Europe" (Kapl, Sojka and Tepper, 1991, p. 199).

In contrast to the Czech Republic, Russia was not as developed and has experienced large economic declines: "...industrial output halved between 1989 and 1994" (Brown, 1995, p. 28), inflation has been reported at 985% (Brown, 1995), and unemployment has risen to 9.5% (United Nations, 1997). Failure to purge the ex-

communists from political and economic negotiations has resulted in less foreign investment in Russia because the lack of favorable conditions to foreign investors (Astrapovich and Grigor'ev, 1994). This has put the Russian economy at a disadvantage to the Czechs: increases in foreign investment is one way to make up for the lack of internal savings or capital (Astrapovich and Grigor'ev, 1994).

One of the major problems for the restructuring of these command economies is the redistribution of labour and labour mobility. During communist rule, "...wage differentials [were] set to allocate labour to particular sectors or regions rather than to reward performance or effort" (Linz, 1995, p. 694). This meant that employees were sent to the regions that the Government thought the need was greatest (Tomes, 1991; Flanagan, 1995) without regard to the performance or wishes of the employee. In addition, employees were provided with benefits, described as job rights (Linz, 1995), from the organizations they worked for: "...access to firm-provided social services (housing, health care, child care, sports facilities, consumer goods, and food)..." (Linz, 1995, p. 425). These job rights and transfers were integral parts of the economic situation (Krumm, Milanovic, and Walton, 1995). Because workers were taken care of, these practices created a situation where there was little labour mobility and "...[reduced] incentives to seek alternative employment thus maintaining socialist employment patterns" (Linz, 1995, p. 425). This adds to the individual's insecurity with the changing economic situation as there was "...psychological unpreparedness for job instability..." and, for the first time, "...the necessity of looking for work oneself" (Gauzner, Ivanov and Mikhina, 1992, p. 50).

Another problem faced by both Russia and the Czech Republic has been reducing redundancies that were caused by over staffing in the communist era (Tung and Havlovic, 1996; Schneider, 1993). Most communist organizations had a large administrative component (Schneider, 1993), especially in the service sector. The

Czechs have been much faster than Russia to reduce these redundancies and develop their service economy because of favorable tourism, less unemployment, and privatization (Schneider, 1993; Brown, 1995).

In comparison to these transitional economies, the economic conditions in North America are relatively stable. Table 1 shows 1996 economic statistics for population, unemployment, and the consumer price index³.

Table 1: National Economic Differences				
	<u>US</u>	<u>Canada</u>	<u>Russia</u>	<u>Czech Republic</u>
Population (in millions):	266.56	29.96	147.74	10.32
Unemployment:	5.1%	9.6%	9.5%	3.3%
Consumer Price Index:	120.1	113.5	192,521.0	167.7

Source: United Nations, Department for Economic and Social Information and Policy Analysis Statistics Division (September, 1997) Monthly Bulletin of Statistics vol. LI, no. 9.

The Canadian and US economies are developed industrially and their service sectors are more fully developed than Russia's or the Czech Republic's. For the most part, redundancies and inefficiencies are eliminated by competitive forces in the North America's open markets.

Labour Markets and International Competition

The labour markets in Russia and the Czech republic are experiencing mobility for the first time since communist rule. The choices for players in these countries are still limited in terms of the number of leagues and salary levels, but have expanded in terms of international opportunities.

³ The consumer price index was set at 100 in 1990.

International competition for Russian and Czech leagues, as mentioned in the introduction, are the markets in North America and Western Europe where highly skilled professionals can earn considerably higher salaries. For Russian and Czech players the NHL is an opportunity, but for the Russian and Czech leagues the NHL represents a threat. Teams in Russia and the Czech Republic cannot afford the compensation levels of the NHL, therefore they lose their most talented players. Western European leagues are also competition with the NHL, Russian, and Czech leagues. Many players involved in contract disputes or who are out of contract choose to play in Europe until they can return to North America. The most notable examples are: Josef Beranek who returned to the Czech Republic in 1996; Igor Larionov who played the 1992-93 season in Switzerland after leaving Vancouver Canucks; and Cliff Ronning who played the 1989-90 season in Italy (Hockey Almanac, 1996).

Motivation Theories

The national differences presented are expected to have an impact on an individual's acceptance of a certain salary. To understand why these factors are important to an individual's behavior, the motivational theories of expectancy and equity will be discussed.

Expectancy

Expectancy theory is a process theory of motivation that explains how an individual will expect a certain performance level, given a specific level of effort, that will lead to outcomes dependent on performance: "...expectancy that effort or action on the part of the person will lead to the intended behavior..." (Lawler, 1973, p. 49) and that successful task performance will lead to "...a number of outcomes" (Lawler, 1973, p. 49). This theory "...stresses the importance of forward beliefs about what will occur" (Lawler, 1973, p. 47). Therefore, what an individual believes will occur is an

integral part of their decision to act (performance). This supports the assumption that players from different cultural backgrounds will accept salaries that are different because they view the total compensation packages differently. According to Adler, "Expectancy theories are universal to the extent that they do not specify the types of rewards that motivate a given group of workers" (Adler, 1997, p. 165). This means that Russian and Czech players may be motivated to play in the NHL because they receive rewards including, but not limited to, their salaries.

Equity

The second model of relevance is the motivational theory of equity. This theory proposes that "...peoples' conceptions of fairness are based on comparisons with salient others" (Akerlof and Yellen, 1990, p.259). However, the theory does not offer a guide as to which referent groups will be salient. There are "three natural possibilities: individuals may compare themselves with others in similar occupations in the same firm, with those in dissimilar occupations in the same firm, or with individuals in other firms" (Akerlof and Yellen, 1990, p.259). For players from Russia and the Czech Republic, salient others could refer to hockey players from their home countries and hockey players in the NHL that are from Western Europe or North America. When accepting their initial contracts players from communist systems may not have had access to salary data. They would, therefore, be largely dependent on the knowledge and skills of their agents. The decision as to what represents a fair salary would be made based on the player's expectations given his performance and, if given the access to salary data, compared to other players.

Summary

The expatriate's national characteristics will affect them in the same way as they would within an organization. Socio-cultural factors, economic, political, labour market and international competition variables will impact on their compensation decisions. Because dissimilar cultures will place different values on the same rewards, it follows that NHL players from different cultures will negotiate compensation packages that reflect their values and expectations, and that comparisons to referent others will be made before acceptance.

Hypotheses

The hypotheses related to performance variables used to test the theoretical model will be presented in this section. The development of the hypotheses is based on the research assumption that the International Human Resource model (Saha, 1993) can be adapted from policies of organizations to the policies of expatriates and that these individuals have the ability to exercise some control over their compensation. Secondly, it is assumed that the differences between NHL franchise operations are limited to the market within which the team operates and therefore, the team's ability to pay.

National Characteristics: Hypotheses 1-3

Several factors will affect players from transitional economies when they decide to come to North America to play hockey. The national characteristics, as explained by Tung and Havlovic (1996), will be important in this decision because these characteristics form the basis for the player's salary expectations.

The economic situation in Russia and the Czech Republic, when compared to North America is not as favorable. The Russian economy is not as developed and its structure is not conducive to transition to a market economy because of the political policies regarding transition (Blanchard, 1996). The Czech economic situation is more favorable than the Russians, however, restructuring has not yet improved the economy to the point of being comparable to North America. Therefore, players from Russia and the Czech Republic will find the economic conditions of North America more desirable.

H1: Players from transitional economies will be strongly influenced by the economic situation in their home country when making their decision to play in North America.

The political situations in Russia and the Czech Republic are quite different: the Russians have failed to transfer much of the power to the private sector which has led to corruption and opposition to reforms (Applebaum, 1994). Although, the political situation in the Czech Republic seems more desirable, the relative stability of North American politics would be appealing. This is especially true when considering the past governments' interference and treatment by the authorities. Players who came to North America before transition were concerned with their safety and the safety of their families (Fachet and Zgoda, 1996).

H2a: Players from transitional economies will consider the political stability of their home country when making their decision to play in North America.

H2b: Players from Russia will rank political instability as a stronger influence on their decision than will players from the Czech Republic.

The cultural factors that are expected to influence Russian and Czech players' decisions are the importance of family and the desire to overcome material shortages: "In a shortage economy, Western goods played an important motivating role" (Puffer and Shekshnia, 1994, p. 36). Both the Czech and Russian athletes were celebrated and rewarded with material goods, however, these rewards were not always enjoyed by their family (Medish, 1991). The players from Russia and the Czech Republic are expected to be strongly influenced by the desire to provide opportunities and higher standards of living for their families.

H3: Cultural factors will influence a player from a transitional economy when making their decision to play in the NHL.

Equity: Hypothesis 4a and 4b

Once a player has made the decision to play in the NHL, they will develop salary expectations based on the national factors discussed. Compatriates, who have been exposed to the same variables, would expect compensation practices to be similar to what they have experienced in their home country. The underlying values instilled from their national culture will not be curbed by the organizational culture. These expectations will be verified by comparing what they expect with the salaries of others. However, the salaries within the countries that they come from are extremely low when compared to North American standards, therefore, these players will not be able to assess what a fair salary would be without outside information.

Once a salary agreement is reached and the player is in North America, he would compare his own salary to other referent groups: other players from his home country and North Americans and Western Europeans in the NHL. Due to the lack of information and cultural differences it is probable that the first contract signed by a

player from a transitional economy would not be as high as for a player coming from North America or Western Europe. Therefore, the first salary will not be perceived as fair once a player has been in the NHL long enough to gain knowledge of other players' salaries.

H4a: Russian and Czech players will believe that their salaries are fair in comparison to others from their home country.

H4b: Russian and Czech players will believe that their salaries are unfair in comparison to North Americans or Western Europeans.

Impact on Salaries: Hypotheses 5

A Russian or Czech player, upon initial entry into the NHL, will be influenced by his national characteristics. As previously discussed, the expectations formed regarding their salaries will be extremely influential on a player as they create expectations regarding pay. To avoid the economic and political problems in their own countries, these players will see North America as a better opportunity than staying in Russia or the Czech Republic. Therefore, players from transitional economies will accept salaries that reflect an opportunity cost for being able to come to North America: their salary levels will be lower, on average, than North Americans and Western Europeans.

H5: When first entering the NHL, players from transitional economies will accept salary levels that are below those of North Americans and Western Europeans.

Impact Over Time: Hypothesis 6

After a player from Russia or the Czech Republic has gained experience in the NHL and has learned the salary ranges and expectations of North American players, he

will change his referent others to be those on his own team, those on other teams in the NHL, and other professional athletes in North America. The second contract that a player signs is expected to have a salary level that is more in line with North Americans' or Western Europeans'. Because the contract agreements with rookies are for a maximum of three years, the salaries for Russian and Czech players, as a group, over a five year time period will be comparable to the other players in the NHL.

H6: There will be no significant differences in the salaries of players from the Czech Republic and Russia who have been in the NHL for at least five years when compared against all other players who have played for at least five years.

Russian and Czech Differences: Hypothesis 7

The differences between Russian and Czech national factors are expected to have an effect on their salary levels. The Russians are in a worse situation economically and politically than the Czechs. Culturally, the differences would not appear so great as to cause differences in salaries. Therefore, based on the economic and political situations of the two countries, it is expected that the Russians will have a greater negative impact on their salary than the Czech's.

H7: When compared to North Americans and Western Europeans, the negative impact of the national factors on a Russian player's salary will be greater than the negative impact on a Czech players salary.

The next set of hypotheses are related to the performance and control variables that will be used to test the hypotheses relating to the International Human Resource Model. These hypotheses are the expected impacts that the control variables will have on salaries in the NHL.

Control Variables: Hypotheses C1 -C8

The salaries of players with more experience are expected to be higher to reflect the knowledge that they bring to the game. Players who have been in the NHL are assets to their teams because they bring with them game experience that is lacking in younger players. The same holds true for players from transitional economies who have had international experience at such tournaments as the World Cup and the Olympics. Since most players enter the sport at an early age and proceed through similar junior levels before entering the elite level in their respective countries, a player's age is a good representation of the amount of experience that they have had in the sport. Therefore, a player's salary will increase with their age as a reflection of their experience.

C1: There will be a positive relationship between a player's age and the level of their salary.

Impact of Position: C2

The nature of hockey is that three distinct positions for players exist: forwards, defencemen, and goalies. Forwards are responsible mostly for offense and are more likely to accumulate points. Defencemen are mostly responsible for stopping the offensive productivity of their opposing team. Even though both positions are involved in offensive and defensive play, it is more difficult to measure the performance of defencemen. Due to the nature of hockey as a game, the positions of forwards and defencemen will place different weights on performance measures. Most of the

measures reported, however, are better indications of offensive play. Therefore, due to the lack of objective statistics available for defensive play, the difference between salary levels for defencemen from transitional economies when compared against all other defencemen is expected to be greater than the differences in salaries from forwards from transitional economies when compared against all other forwards.

C2: There will be a negative relationship between the position of defenceman (all nationalities) and salary when compared to forwards.

The draft round that a player is chosen in will have an impact on the salary of a player. Because teams choose, in order, those that they feel will have the most potential, players that are drafted in early rounds will be expected to perform at a higher level than those chosen in later rounds. With the expectation of higher performance comes an expectation for a higher salary. Therefore, the further down in the draft that a player is chosen will result in a lower salary.

C3: There will be a negative relationship between the round that a player was drafted in and their salary.

The organizational factor to be investigated is the market within which a team operates. This will have an impact on the team's ability and willingness to pay. If a team operates in a market that has a higher revenue, than the team will be able to pay more for skilled players. Because the players on the same team will be referent others, as one player sees an increase in salary, others will also expect an increase. This will

lead to an increasing effect on the salaries of all players on the team.

C4: There will be a positive relationship between the total team payroll and an individual's salary.

The performance measures: goals, assists, and total points will have an impact on a player's salary. It is a team's objective to score more points than their opposition, therefore, those players who are most adept at scoring points for their team will be rewarded more than those who are not. Total points is the sum of goals and assists.

C5: There will be a positive relationship between a player's salary and the number of goals that they score.

C6: There will be a positive relationship between a player's salary and the number of assists that they achieve.

C7: There will be a positive relationship between a player's salary and the total points that they achieve.

The performance measure of penalty minutes (PIM) has been used in other research to represent defensive play (Jones and Walsh, 1988). The rationale for including this statistic is that it is a measure of defensive play: players will take penalties in order to prevent an opponent from gaining a scoring opportunity. However, for most players (the exception being players who are there to protect their teammates) taking penalties puts their team at a disadvantage during the resulting power play and would, therefore, not be rewarded. It is expected that the number of

penalty minutes a player is given will have no impact on their salary because the defensive element of penalties will be negated by the power play disadvantage element.

C8: There will be no relationship between a player's salary and the number of penalty minutes that they receive.

Chapter 3: Methodology

Chapter Overview

This chapter will review the methods that were used to test the hypotheses presented in chapter two.

The hypotheses developed in the previous chapter were tested using two methods: a survey and pooled time series analysis. All players included in this research were forwards or defencemen. Goalies were excluded as their performance data is not comparable to the data supplied for forwards and defencemen.

Survey

The purpose of the questionnaire was to establish the factors which affected the decisions of Russian and Czech players to play in the NHL, determine if these players intend to remain in North America after their hockey playing careers are over, and to determine if there is any perceived discrimination in regards to their salaries versus players from North America. A complete copy of the survey is presented in Appendix 2. The survey was not pre-tested, however, the factors influencing the decision to live and work in North America were developed as the result of a discussion with university students from the Czech Republic and Russia.

Survey Sample

To test hypotheses 1- 4, 49 Russian and 32 Czech players were surveyed. The sample was taken from the population of NHL players that were playing in the 1996-1997 season. Active players were found in the March 18,1997 issue of the Hockey News and cross referenced with the 1997 NHL Yearbook for place of birth and The NHL Official Guide and Record Book(1996) for previous playing experience.

Russians were defined as any player who was born in the former USSR and who had played in a league in the Russian federation prior to coming to North America. Czechs were defined as any player who was born in the former Czechoslovakia and who had played in a Czech league prior to playing in the NHL. Statistical analysis was not performed on the returned surveys due to the minimal response. Only 11 of the 80 surveys were returned. While, comparative t-tests were to be performed on the survey data, only descriptive data results will be presented.

Survey Questions

To test hypotheses H1-H2 players were asked to rate the statements in Section A of the survey (see Appendix 2) on a five point scale. The statements were intended to determine the extent that national characteristics influenced the players when making their decision to play in North America.

Hypothesis 1 (influence of the player's home country economic situation) was measured by asking the players to rate the influence of their home country's economy. In order to determine the specific economic factors that influenced the player, statements regarding career opportunities, salary opportunities, and access to goods and services were included. Hypotheses H2a and H2b were tested by asking the players to rate the influence of their home country's political factors.

Hypothesis 3 (Cultural factors will influence a player from a transitional economy when making their decision to play in the North America) was measured by asking the player to rank the importance of greater personal freedom, enjoyment of work, enjoyment of life, opportunities for their families, and new experiences.

The two statements asking the players to rate the influence of poor relations with members of the hockey organization in your home country and standards (skill level) of the players in the National Hockey League, were included to explore factors more directly related to hockey.

The second section of the survey (Section B) was designed to determine the player's preference for living in their home country or North America and explore the factors that would have to change in order for the player to consider returning.

Section C of the survey was intended to test Hypotheses H4a and H4b (Russian and Czech players will believe that their salaries are fair in comparison to others from their home countries and unfair in comparison to North Americans).

Pooled Time Series Analysis

In order to test hypotheses H5-H7, which relate to salary levels of Russian and Czech players, the salaries of the players was used as the dependent variable. The main independent variable tested was Russians and Czechs as one group and Russians and Czechs independently. This was done in order to test for an effect of being from Russia and the Czech Republic. In addition, several performance and control variables were used. The next section presents the variables used in the regression equations and explains how the regression equations and samples were used to test the hypotheses.

Dependent Variable: Salary

The dependent variable salary is reported in thousands of US dollars. Data that was reported in Canadian dollars in The Hockey News⁴ was converted into US funds. Exchange rates were taken from the Monthly Bulletin of Statistics, March 1997 (See Appendix 4 for rates).

Previous studies have used the natural log of salary as their dependent variable (Jones and Walsh, 1988; Longley, 1995). The natural log of the salary variable was generated because the salary is always a positive value, therefore, “it is more likely to be a log normal random variable than a random variable” (Longley, 1995). However, tests of the data showed that there was a decrease in the R-square (see Appendix 7 for regression results) when using the log of salary, therefore, the log variable was not used.

⁴ Data was collected in the following issues of The Hockey News : 1992/93 data was published on October 16th, 1992, 1993/94 on December 17th, 1994/95 on March 25th, 1995, 1995/96 on April 5th, 1996, and 1996/97 on November 22nd, 1996.

Transitional Variable

To test hypotheses H5-H7, a dummy variable that represents citizenship was created. The variable Rus/Czech was used to identify players from Russia and the Czech republic when they were combine into one group. When the Russians and Czechs were tested separately they were labeled Russian and Czech respectively. Players from North America and Western Europe form the control group.

Performance Measures

The performance measurements used in the regression analyses were goals, assists, total points and penalty minutes during each season's regular season. These measure correspond to Control Hypotheses C5-C7. Performance statistics for the 1992-93 to 1994-95 seasons were taken from The NHL Official Guide and Record Book (1996). The 1995-96 and 1996-97 seasons' performance data were taken from The Hockey News on April 26, 1996 and April 18, 1997 respectively. These statistics are the most commonly used when reporting players performances, however, they are not independent from the teams' performance. Because of the nature of the game, an individual player's performance will be affected by the quality of play of the teammates that are on the ice with him. For example, wingers that are consistently paired with a high scoring centerman (such as Gretzky) will see an increase in their assist numbers just because of the play of the other person on their line. Also dependent on the performance of teammates is the performance statistic plus/minus (+/-). This statistics reflects the number of goals that are scores while a player is on the ice: the number of

goals scored against a player's team are subtracted from the goals scored for a player's team. This statistics was not used because it is dependent not only on line mates and defensive pairings, but also on the performance of the goalies.

Control Variables

The variables age, position, draft round, and team payroll were used as controls. These variables are not performance related and are beyond the performance control of the players. To test Control Hypothesis C1 (There will be a positive relationship between a player's age and the level of their salary) the age of the players was used. Age was reported as a continuous variable in years. Position was used to test Control Hypothesis C2 (There will be a negative relationship between the position of defenceman and salary when compared to forwards) and was dummy coded as a zero (0) for forwards and a one (1) for defencemen.

Control Hypothesis C3 (There will be a negative relationship between the round that a player was drafted in and their salary) was tested using the draft round variable. The draft round was determined by dividing the player's overall rank in the draft and dividing that by the number of teams participating in the draft for that year. Each team has one draft pick for each round, therefore, the number of players taken on each round is dependent on the number of teams in the league. See Appendix 5 for the number of rounds in each year. The overall position that a player was drafted in was taken from The NHL Official Guide and Record Book(1996) and divided by the number of rounds for that draft year. Players that were not drafted were given the ranking of 13 or the last round. These players were free agents that were not chosen in

the draft. It was assumed that these players were seen to have less potential than those who were drafted. To reflect this assumption, these players were assigned the lowest draft round ranking.

Although, the position that a player is drafted is some reflection of performance, this variable was also included to control for any prejudice that may be felt toward Russians and/or Czechs. Because the round that a player is drafted in reflects the desirability of a player, it is expected that any prejudice felt toward a player would result in a lower draft ranking and, therefore, lower salary as stated in Control Hypothesis C3.

Team payroll was used to test Control Hypothesis C4 (There will be a positive relationship between the total team payroll and an individual's salary). The total team payroll was obtained through the same issues of The Hockey News as those used for individual player salaries. Salary listings for the individual players also reported the total team payroll and where necessary was converted into US dollars (see Appendix 4 for exchange rates).

Hypothesis 5: Sample 1

To test hypothesis 5 (Players from transitional economies will accept salary levels that are below those of North Americans or Western Europeans when first entering the NHL), Sample 1, was used. This sample contains all forwards and defencemen who appeared in at least five games in the NHL for the 1994-95, 1995-96, and 1996-97 seasons were eligible. All players included in this sample are listed in

Appendix 3. Players were discarded from the sample if their salary or performance data was not available in The Hockey News. Performance data that was not available was due to the player having a season long injury or not appearing in any regular season games. Table 2 shows descriptive data for players in Sample 1.

Table 2: Descriptive Data for Sample 1	
Years: 1994-95, 1995-96, 1996-97	<u>Sample 1: 3 Years</u>
Average Salary.....	US\$937,000
Total Players.....	375
Players: Rus/Czech.....	55
N.A and W. European.....	320
Number of Forwards.....	250
Number of Defenceman.....	125
Average Age.....	27.314
Average Draft Round.....	4.3573
Average Team Payroll.....	US\$19,736,000
Average Goals Scored.....	10.771
Average Assists.....	17.538
Average Total Points.....	28.347
Average Penalty Minutes.....	59.133

The regression equations used to test hypothesis 5 are listed below. The performance measures are tested separately to avoid multicollinearity.

The four regression equations used are:

$$1A: \text{Salary} = a + b_1 \text{Rus/Czech} + e$$

$$1B: \text{Salary} = a + b_1 \text{Rus/Czech} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Goals} + b_7 \text{Penalty Minutes} + e$$

$$1C: \text{Salary} = a + b_1 \text{Rus/Czech} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Assists} + b_7 \text{Penalty Minutes} + e$$

$$1D: \text{Salary} = a + b_1 \text{Rus/Czech} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Total Points} + b_7 \text{PenaltyMinutes} + e$$

Hypothesis 6: Sample 2

Hypothesis 6 (There will be no significant differences in the salaries of players from the Czech Republic and Russia who have been in the NHL for at least five years when compared against all other players who have played in the NHL for at least five years) was tested using Sample 2 which consists of five years of data. Subjects in this sample are the players from Sample 1 that have been in the league for 5 years. These are players that have proven their performance to the extent that they have played regularly for 5 years. This sample takes into account that adjustments have been made

in the players' salary levels as they have all past the maximum three year rookie contract. Descriptive data for this sample is presented in Table 3.

Table 3: Descriptive Data for Sample 2

Years: 1992-93, 1993-94, 1994-95, 1995-96, 1996-97

Sample 2: 5 Years

Average Salary.....	US\$832,000
Total Players.....	296
Players: Rus/Czech.....	37
N.A and W. European.....	169
Number of Forwards.....	194
Number of Defenceman.....	102
Average Age.....	27.222
Average Draft Round.....	4.4696
Average Team Payroll.....	US\$16,694,000
Average Goals Scored.....	13.021
Average Assists.....	21.645
Average Total Points.....	34.671
Average Penalty Minutes.....	70.584

For Sample 2 (all players for 5 years) the same equations were used:

$$2A: \text{Salary} = a + b_1 \text{Rus/Czech} + e$$

$$2B: \text{Salary} = a + b_1 \text{Rus/Czech} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Goals} + b_7 \text{PenaltyMinutes} + e$$

$$2C: \text{Salary} = a + b_1 \text{Rus/Czech} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Assists} + b_7 \text{PenaltyMinutes} + e$$

$$2D: \text{Salary} = a + b_1 \text{Rus/Czech} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Total Points} + b_7 \text{PenaltyMinutes} + e$$

Hypothesis 7: Samples 3 and 4

Hypothesis 7 (the negative impact on a Russian player's salary will be greater than the negative impact on a Czech player's salary) was tested using two samples. Sample 3, compares Russians against players from Western Europe and North America. The same players from Sample 1 were used, with the Czechs removed from the sample. See Table 4.

Table 4: Descriptive Data for Sample without CzechsSample 4: 3 Years

Average Salary.....	US\$944,800
Total Players.....	355
Russians.....	35
N.A. and W. Europeans.....	320
Number of Forwards.....	237
Number of Defenceman.....	119
Average Age.....	27.457
Average Draft Round.....	4.4101
Average Team Payroll.....	US\$19,812,000
Average Goals Scored.....	10.614
Average Assists.....	17.406
Average Total Points.....	28.061
Average Penalty Minutes.....	60.287

The regression equations for the Russian sample are similar to those used to test hypotheses 5 and 6. In order to examine the Russian and Czech variables separately, the variable Rus/Czech was changed to reflect the nationality that was being tested.

$$3A: \text{Salary} = a + b_1 \text{Rus} + e$$

$$3B: \text{Salary} = a + b_1 \text{Rus} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Goals} + b_7 \text{PenaltyMinutes} + e$$

$$3C: \text{Salary} = a + b_1 \text{Rus} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Assists} + b_7 \text{PenaltyMinutes} + e$$

$$3D: \text{Salary} = a + b_1 \text{Rus} + b_2 \text{Age} + b_3 \text{Position} + b_4 \text{Draft} + b_5 \text{Team} + b_6 \text{Total Points} + b_7 \text{PenaltyMinutes} + e$$

Sample 4 , compares the Czechs against Western Europeans and North Americans. Although there are not enough Czechs (only 20) to be statistically significant, this sample was used to supplement the results of the regressions run on Sample 1 and Sample 4. Descriptive data for Sample 4 is in Table 5.

Table 5: Descriptive Data for Sample without RussiansSample5: 3 Years

Average Salary.....	US\$934,270
Total Players.....	340
Czechs.....	20
N.A. and W. Europeans.....	320
Number of Forwards.....	228
Number of Defenceman.....	112
Average Age.....	27.484
Average Draft Round.....	4.2324
Average Team Payroll.....	US\$19,633,000
Average Goals Scored.....	10.628
Average Assists.....	17.258
Average Total Points.....	27.940
Average Penalty Minutes.....	60.425

The regression equations for sample four are similar to the ones used to test the Russian sample. The Russian variable has been changed to Czech.

$$4A: \text{Salary} = a + b_1\text{Czech} + e$$

$$4B: \text{Salary} = a + b_1\text{Czech} + b_2\text{Age} + b_3\text{Position} + b_4\text{Draft} + b_5\text{Team} + b_6\text{Goals} \\ + b_7\text{PenaltyMinutes} + e$$

$$4C: \text{Salary} = a + b_1\text{Czech} + b_2\text{Age} + b_3\text{Position} + b_4\text{Draft} + b_5\text{Team} + b_6\text{Assists} + b_7\text{PenaltyMinutes} + e$$

$$4D: \text{Salary} = a + b_1\text{Czech} + b_2\text{Age} + b_3\text{Position} + b_4\text{Draft} + b_5\text{Team} + b_6\text{Total Points} + b_7\text{PenaltyMinutes} + e$$

Control Hypothesis C2

The control hypotheses were tested across samples with the exception of C2 (There will be a negative relationship between the position of defencemen and salary when compared to forwards). Unfortunately, there are not enough defencemen to test defencemen alone in a regression analysis. Therefore, forwards were tested in this sample and results were compared against the results of the regression equations containing all players to determine if the hypothesis is supported. This sample consists only of the forwards from sample 1 (see Table 6).

Table 6: Descriptive Data for ForwardsSample 3: 3 Years

Average Salary.....		\$US963,000
Total Forwards.....		250
Players: by citizenship.....	Russians and Czechs	35
	N.A. and W. Europeans	215
Average Age.....		27.084
Average Draft Round.....		4.428
Average Team Payroll.....		\$US19,538,000
Average Goals Scored.....		13.901
Average Assists.....		18.807
Average Total Points.....		32.775
Average Penalty Minutes.....		58.529

Sample 5 (forwards only) was tested using the same base regression, but omitting the position variable as it was redundant.

$$5A: \text{Salary} = a + b_1 \text{ Rus/Czech} + e$$

$$5B: \text{Salary} = a + b_1 \text{ Rus/Czech} + b_2 \text{ Age} + b_3 \text{ Draft} + b_4 \text{ Team} + b_5 \text{ Goals} + b_7 \text{ Penalty Minutes} + e$$

$$5C: \text{Salary} = a + b_1 \text{ Rus/Czech} + b_2 \text{ Age} + b_3 \text{ Draft} + b_4 \text{ Team} + b_5 \text{ Assists} + b_6 \text{ Penalty Minutes} + e$$

$$5D: \text{Salary} = a + b_1 \text{ Rus/Czech} + b_2 \text{ Age} + b_3 \text{ Draft} + b_4 \text{ Team} + b_5 \text{ Total Points} \\ + b_7 \text{ Penalty Minutes} + e$$

To assist the reader the following chart relating the hypotheses to the regression equations has been provided.

Table 7: Hypotheses and Regression Equations

Hypothesis	Sample	Base Regression Equations
5	#1 All Players for 3 Years	1A: $\text{Salary} = a + b_1 \text{ Rus/Czech} + e$
6	#2 All Players for 5 Years	2A: $\text{Salary} = a + b_1 \text{ Rus/Czech} + e$
7	#3 (Russians) for 3 Years	3A: $\text{Salary} = a + b_1 \text{ Rus} + e$
	#4 (Czechs) for 3 Years	4A: $\text{Salary} = a + b_1 \text{ Czech} + e$
C2	#5 Forwards Only for 3 Years	5A: $\text{Salary} = a + b_1 \text{ Rus/Czech} + e$

Control Variables used in All Equations for All Samples:

Hypothesis	Variable	Hypothesis	Variable
C1	b_2 Age	C5	b_6 Goals
C2	b_3 Position	C6	b_6 Assists
C3	b_4 Draft	C7	b_6 Total Points
C4	b_5 Team	C8	b_7 Penalty Minutes

Pooled Time Series Procedures

The samples were set up as a pooled times series. This means that the different cross-sections were observed over a period of time (Sayrs, 1989). Generalized least squares procedures (multiple regression analysis) were applied to test hypotheses 5, 6, and 7. This approach captures variation over time as well as across groups (Sayrs, 1989). The advantage of this method is that it allows for non-constant variance between cross-sections and across time.

The SHAZAM software (White et al, 1993) that was used to run the analyses reports the correlation in the error terms that is carried over from the previous year (Rho-1) and two R-square values. The Buse Raw-Moment R-square is the amount of variation in salary in the regression equation when Rho-1 is included. The Buse R-square term represents the amount of variance in salary after the serial correlation of the errors (Rho-1) has been removed. The Rho-1 and the Buse R-square statistics will be reported.

Chapter 4: Results

This chapter contains the results of the survey and the pooled time series analyses. Results will be presented by hypothesis. Only 9 surveys were returned so results of hypotheses H1-H4 will be presented descriptively. The results for Hypotheses H5-H7 will be presented using only the total points performance variable. Regression results for the other two performance variables (goals and assists) can be found in Appendix 9.

Hypotheses H1, H2a and H2b: Survey Results

The survey response rate was very low: only 9 usable surveys, 7 Russians and 2 Czechs, were returned. Hypotheses 1 and 2 cannot be tested as no meaningful statistical analysis could be performed. All seven Russians rated the economic conditions in Russia as “did not influence” or “slightly influenced”. Factors considered to be influential in their decisions were: greater career opportunities in North America, higher salary opportunities in North America, and the standards (skill level) of the players in the National Hockey League. Section B, relating to living preferences, revealed no useful information. For the questions regarding the player’s feeling of equity (Section C #1-4), all players responded that they were paid fairly in comparison to other players from their home country. Six players did not think they were paid fairly on their first contract. All other questions had a variety of responses that cannot be interpreted because of the inconsistent nature of the responses.

Pooled Time Series

The pooled times series results will be presented by hypotheses (H5-H7).

Control Hypotheses C1-C4 will be discussed throughout; while Control Hypotheses relating to the performance measures, C5-C7, will be presented at the end of the chapter. A discussion of the results will be presented in chapter 5.

The performance variables goals, assists, and total points were run in separate regressions to avoid multicollinearity, which is "...present when the predictor variables are correlated among themselves" (Churchill, 1995, p.). The correlation matrix for all variables for Sample 1 is shown in Table 8.

Table 8: Correlation Matrix Sample 1 : All Variables All Players for 3 Years

	Salary	Rus/ Czech	Age	Position	Draft	Team	Goals	Assists	Total Points	Penalty Mins.
Salary	1.000									
Rus/ Czech	-0.016	1.000								
Age	0.186	-0.211	1.000							
Position	-0.043	0.016	0.083	1.000						
Draft	-0.106	0.046	0.321	-0.026	1.000					
Team	0.313	0.009	0.269	0.047	0.255	1.000				
Goals	0.482	0.078	-0.049	-0.434	-0.116	0.147	1.000			
Assists	0.559	0.077	0.062	-0.128	-0.113	0.205	0.711	1.000		
Total Points	0.585	0.081	0.017	-0.278	-0.116	0.197	0.891	0.941	1.000	
Penalty Mins.	-0.006	-0.124	-0.017	0.016	0.299	0.089	-0.009	-0.410	-0.031	1.000

N = 1125 * Values greater than 0.058 are significant at $p > 0.05$. Therefore, the practical significance is more meaningful and values above 0.70 were set as the cut-off point for all correlation matrices.

The high positive correlations between goals and assists, goals and total points, and assists and total points are seen in all of the samples. See Appendix 6 for the correlation matrices using all variables for Samples 2, 3, 4 and 5.

Hypothesis 5: Sample 1

The first sample, all players for 3 years, was used to test Hypothesis 5 (Players from transitional economies will accept salary levels that are below those of North America and Western Europeans when first entering the NHL). The first regression equation tests only the Rus/Czech variable. The second regression equation uses the total points performance measure and controls for the player's age, position, draft round, and performance, as well as the team's market.

Descriptive statistics for Sample 1 are shown in Table 9. The average salary for this sample is US\$937,000 with the highest being US\$6,545,000 and the lowest US\$106,000.

Table 9: Descriptive Statistics for Sample 1: All Players for 3 Years

N = 1125

<u>Variable</u>	<u>Mean</u>	<u>St. Dev</u>	<u>Variance</u>	<u>Minimum</u>	<u>Maximum</u>
Salary (\$1000's)	937.10	868.47	754240	106.91	6545.0
Rus/Czech	0.144	0.351	0.123	0	1
Age	27.314	3.926	15.409	18	
Position	0.333	0.472	0.222	0	1
Draft Round	4.357	3.885	15.091	1	13
Team Payroll (\$1,000,000's)	19.736	5.982	35.788	9.200	37.900
Goals	10.771	104.03	104.03	0	62
Assists	17.538	13.975	195.30	0	92
Total Points	28.347	22.569	509.34	0	147
Penalty Minutes	59.133	51.916	2695.3	0	371

The correlation matrix for the first regression, using only Rus/Czech as the independent variable, is shown in Table 10.

Table 10: Correlation Matrix A Sample 1: All Players for 3 Years

	Salary	Rus/Czech
Salary.....	1.000	
Rus/Czech.....	-0.016	1.000

For Sample 1: N = 1125 Values greater than 0.058 are significant at $p > 0.05$.

The regression results for equation 1A are shown in Table 11. The independent variable, Rus/Czech, explains less than half a percent of the variation in Salary. However, it is significant at the 95% confidence interval and the magnitude of the variation is large: negative US\$110,060. This supports Hypothesis 5 (When first entering the NHL, players from Russia and the Czech Republic will accept salary levels that are below those of North Americans and Western Europeans).

Table 11: Regression A Sample 1: All Players for 3 Years
Dependent Variable Salary

	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Rus/Czech.....	-110.06	48.71	-2.259	0.024
Constant.....	779.87	15.65	49.83	0.000
R-Square ⁵	0.0045			
D.F.....	1123			
Rho.....	0.927			

⁵ note: the R-square reported is the value after the serial correlation of the errors (Rho) has been removed.

Results from regression equation 1C (see Table 12) show that the regression equation that uses total points as the performance measure explains 79% of the variation in Salary. Rus/Czech is significant at the $p < 0.01$ level, which suggests a negative effect of being from Russia or the Czech Republic of US\$55,526. This finding supports Hypothesis 5. All other variables are significant at the $p < 0.001$. There is a positive relationship between age and salary which supports Control Hypothesis C1. With a one year increase in age resulting in a salary increase of \$36,478.00. As expected, draft round is negatively related to salary with a player making \$25,409 less per season for each later round. Control Hypothesis C2, is not supported: a ranking of defencemen results in a salary that is \$155,160 more than for forwards. Also supported is control hypothesis C4, a \$1,000,000 increase in the total team payroll results in an increase in salary of \$17,062.

Table 12: Regression D Sample 1: All Players for 3 Years
Dependent Variable: Salary

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	-55.526	17.30	-3.209	0.001
Age.....	29.188	1.833	15.92	0.000
Position.....	155.16	11.05	14.04	0.000
Draft Round.....	-22.955	1.182	-19.42	0.000
Team Payroll	17.062	0.710	24.03	0.000
Total Points.....	15.849	0.3547	44.68	0.000
Penalty Mins.....	-0.5242	0.0809	-6.475	0.000
Constant.....	-642.18	47.42	-13.54	0.000
R-Square.....	0.7943			
D.F.....	1117			
Rho.....	0.63012			

Hypothesis 6: Sample 2

The second set of regression equations were used to test Hypothesis H6 (There will be no significant differences in the salaries of players from Russia and the Czech Republic who have been in the NHL for at least five years when compared against all other players who have been in the NHL for at least five years). The descriptive statistics shown in Table 13 show the same large variance in salary as in Sample 1.

Table 13: Descriptive Statistics for Sample 2: All Players for 5 Years

N= 1480

<u>Variable</u>	<u>Mean</u>	<u>St. Dev</u>	<u>Variance</u>	<u>Minimum</u>	<u>Maximum</u>
Salary (\$1000's)	832.72	812.44	660050	102.28	6545.00
Rus/Czech	0.186	0.389	0.151	0	1
Age	27.222	3.717	13.816	18	39
Draft Round	4.460	3.966	15.726	1	13
Team (\$1,000,000's)	16.694	6.479	41.983	5.035	37.900
Goals	13.021	12.109	146.63	0	76
Assists	21.645	16.624	276.350	0	97
Total Points	34.671	26.747	715.39	0	148
Penalty Mins.	270.584	60.087	3610.4	0	399

Table 14 presents the correlation matrix for the variables in regression equation 2A.

Table 14: Correlation A Matrix: Sample 2: All Players for 5Years		
	Salary	Trans
Salary	1.000	
Trans	0.022	1.000

For Sample 2: N = 1480 Values greater than 0.051 are significant at $p > 0.05$.

The results of the regression A are shown in table 15. The independent variable is explaining less than 1% of the variation in salary. Hypothesis 6 is supported as being from Russia or the Czech Republic results in a positive impact on salary (\$107,100) which is significant at the $p < 0.01$ level. This demonstrates that, over time, players from Russia and the Czech republic will have no difference in their salaries when compared to North Americans or Western Europeans. The significant increase in the Russian and Czech players' salaries over those from North America and Western Europe can be explained in terms of the talent levels of those players from Russia and the Czech Republic. When performance measures are controlled for, the Rus/Czech variable becomes insignificant.

Table 15: Regression A Sample 2: All Players for 5 years
Dependent Variable Salary

	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Rus/Czech.....	107.10	31.73	3.376	0.001
Constant.....	748.72	19.28	38.83	0.000
R-Square.....	0.007			
D.F.....	1478			
Rho.....	0.81924			

The total points regression equation (see Table 16) shows the Rus/Czech variable to be negative. However, it is insignificant at $p = 0.437$. Therefore, hypothesis 6 is supported: players from Russia and the Czech Republic will have comparable salaries after five years. The position variable has a negative effect. This is contrary to the three year sample (1) where the total points regression showed a positive impact on defencemen. All other control variables have effects that are similar to the previous sample when using the same regression equation (see Table 12).

Table 16: Regression D Sample 2: All Players for 5 Years**Dependent Variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	-14.954	19.25	-0.777	0.437
Age.....	49.288	2.408	20.47	0.000
Position.....	-25.032	1.782	-14.05	0.000
Draft Round.....	293.706	1.114	26.66	0.000
Team Payroll.....	5.3623	0.305	17.60	0.000
Total Points.....	-0.449	0.098	-4.581	0.000
Penalty Mins.....	-1141.7	57.57	-19.83	0.000
R-Square.....	0.6323			
D.F.....	1473			
Estimated Rho	0.60164			

Hypothesis 7: Samples 3 and 4

Comparisons of the Russian sample (3) against and the Czech sample (4) and the transitional sample (1) were used to test hypothesis 7: the negative impact on a Russian player's salary will be greater than the negative impact on a Czech player's salary. The regression equations used to test the Russian sample are similar to those used in the first two samples with the exception being that Rus/Czech is now coded as Russian because the Czech players have been removed.

Descriptive Statistics for this sample are in Table 17.

Table 17: Descriptive Statistics for Sample (3) without Czechs for 3 Years

N = 1068

<u>Variable</u>	<u>Mean</u>	<u>St. Dev</u>	<u>Variance</u>	<u>Minimum</u>	<u>Maximum</u>
Salary (\$1000's)	944.80	875.48	766460	106.91	6545.0
Russian	0.0983	0.298	0.088	0	1
Age	27.457	3.886	15.094	18	39
Position	0.334	0.472	0.223	0	1
Draft Round	4.410	3.943	15.543	1	13
Team Payroll (\$1,000,000's)	19.812	6.004	36.051	9.200	37.900
Goals	10.614	9.824	96.511	0	55
Assists	17.406	13.721	188.27	0	92
Total Points	28.061	21.974	482.87	0	120
Penalty Mins.	60.287	52.644	2771.4	0	371

The correlation matrix for regression 3A is shown in table 18.

	Salary	Russian
Salary	1.000	
Russian	0.007	1.000

For Sample 3: N = 1068 Values greater than 0.059 are significant at $p > 0.05$.

The results of the regression A (Table 19) show that the Russian variable is significant at $p < 0.05$, but explains only 0.61% of the variation in salary. There is a negative impact of being from Russia of \$176,000.000. This is significantly higher than the \$110,000.00 per season that resulted from the transitional variable in equation A tested on sample 1. This supports the hypothesis that Russians will experience a greater negative effect than Czechs: Russians as a group will earn \$66,000.00 less a year than the group that contained both Russians and Czechs. However, the Russian variable is not significant when the performance variables are used.

Table 19: Regression A Sample (3) without Czechs for 3 years
Dependent Variable Salary

	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Russian.....	-176.00	68.53	-2.568	0.01
Constant.....	780.42	15.33	50.91	0.000
R-Square.....	0.0061			
D.F.....	1066			
Rho.....	0.92068			

Regression 3D (see Table 20), testing the Russian sample using total points, exhibits the same effects as regression 1D (all players in the sample). Here the regression equation is explaining 80% of the variation in salary. The Russian variable is not significant at the standard 95% confidence interval, but is significant at the 90% confidence interval ($p = 0.088$). The magnitude of the coefficient is negative \$36,066.00. This suggests that the effect of being Russian does not have the same degree of negative impact as being Czech. The sample containing both Russians and Czechs, resulted in a negative effect of \$55,526.00. This is a \$19,000.00 difference when the Czechs are included in the sample.

Table 20 Regression D Sample (3) without Czechs for 3 Years**Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Russian.....	-36.066	21.13	-1.707	0.088
Age.....	31.079	1.975	15.74	0.000
Position.....	166.78	11.26	14.81	0.000
Draft Round	-24.557	1.235	-19.89	0.000
Team Payroll.....	15.180	0.763	19.91	0.000
Total Points.....	16.218	0.397	40.86	0.000
Penalty Mins.....	-0.619	0.082	-7.528	0.000
Constant.....	-652.72	50.17	-13.01	0.000
R-Square.....	0.8005			
D.F.....	1060			
Estimated Rho	0.637			

The Czech sample is comprised of the players from sample 1, minus the Russians. Because there are only 20 Czechs in the sample the results are not statistically valid. Although there are not enough Czechs in this sample to satisfy the Central Limit Theorem, the regressions were run to provide a comparison to the Russian sample that was just presented. Russian has been replaced in the regression

equations with the Czech variable. Descriptive statistics for the Czech sample (5) are displayed in table 21.

Table 21: Descriptive Statistics for Sample (4) without Russians for 3 Years

N= 1020

<u>Variable</u>	<u>Mean</u>	<u>St. Dev</u>	<u>Variance</u>	<u>Minimum</u>	<u>Maximum</u>
Salary 1000's).....	934.27	847.99	719090	106.91	6545.0
Czech.....	0.056	0.229	0.053	0	1
Age.....	27.484	3.868	14.964	18	39
Position.....	0.329	30.470	0.221	0	1
Draft.....	4.232	3.901	15.217	1	13
Team (1,000,000's)	19.633	5.891	34.703	9.200	37.900
Goals.....	10.628	10.183	103.70	0	62
Assists.....	17.258	13.949	194.58	0	92
Total Points.....	27.940	22.515	506.92	0.000	147.000
PIM.....	60.425	53.061	2815.5	0.000	371.000

The correlation matrix for Sample 4 is shown in Table 22.

Table 22: Correlation A Matrix: Sample (4) without Russians for 3 Years

	Salary	Trans
Salary	1.000	
Czech	-0.0406	1.000

For Sample 4: N = 1020 Values greater than 0.061 are significant at $p > 0.05$.

Table 23: Regression A Sample (4) without Russians for 3 years
Dependent Variable Salary

	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Czech.....	-93.510	71.08	-1.316	0.189
Constant.....	780.64	15.39	50.72	0.000
R-Square.....	0.0017			
D.F.....	1018			
Rho.....	0.918			

The results of the regression A (see Table 23) show that the Czech variable is not significant and explains less than 0.2% of the variation in salary. The negative impact of being from the Czech Republic is \$93,510 in contrast to the Russian regression (3A) of negative \$176,000. If significant, this taken on its own would have supported the hypothesis that Russians experience a more severe negative effect on their salaries than Czechs. However, when examined with the performance variables, the effects of being Czech become more pronounced.

The regression equation (4D) tests the Czech sample using total points (See Table 24). The Czech variable is negative \$101,990 ($p < 0.005$). The Russian variable (see Table 20) was not significant ($p = 0.088$) and had a coefficient of negative \$36,066.00. Again, this suggests that the effect of being Russian does not have the

same degree of negative impact as being Czech. The same base equation (D) for sample 1 containing both Russians and Czechs, reported Rus/Czech at negative \$55,526.00. The magnitude of the Czech variable explains why the Russian sample does not have significant results, but the combined sample does: the variance of the Czech players' salaries is skewing the results of the sample containing both Russians and Czechs. These results do not support hypothesis 7. Russians do not appear to have a more severe negative impact on their salaries than Czechs.

Table 24: Regression D Sample (4) without Russians for 3 Years
Dependent Variable: Salary

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Czech.....	-101.99	27.93	-3.652	0.003
Age.....	34.483	2.013	17.13	0.000
Position.....	190.56	12.01	15.87	0.000
Draft Round.....	-22.364	1.127	-19.84	0.000
Team Payroll.....	17.370	0.722	24.07	0.000
Total Points.....	16.279	0.382	42.65	0.000
Penalty Mins.	-0.392	0.073	-5.396	0.000
Constant.....	-823.96	51.73	-15.93	0.000
R-Square.....	0.8172			
D.F.	1012			
Estimated Rho.....	0.59263			

Control Hypotheses

The control hypotheses were significant in all of the regression equations and, with the exception of C2, supported the hypotheses. Hypothesis C2 (There will be a negative relationship between the position of defenceman and salary) was not supported in several of the regression tests. Therefore, a separate sample containing only forwards was created to test control hypothesis C2. Descriptive statistics for this sample are reported in Table 25.

Table 25: Descriptive Statistics for Sample 5: Forwards for 3 Years

N = 750

<u>Variable</u>	<u>Mean</u>	<u>St. Dev</u>	<u>Variance</u>	<u>Minimum</u>	<u>Maximum</u>
Salary (\$1000's)	963.06	939.36	880000	106.91	6545.0
Rus/Czech	0.140	0.347	0.121	0.000	1.000
Age	27.084	3.948	15.588	18.000	39.000
Draft Round	4.428	3.951	15.610	1.000	13.000
Team Payroll (\$1,000,000's)	19.538	5.846	34.170	9.200	37.900
Goals	13.901	10.738	115.30	0.000	62.000
Assists	18.807	14.184	201.19	0.000	86.000
Total Points	32.775	23.615	557.65	0.000	147.00
Penalty Mins.	58.529	53.766	2890.80	0.000	371.00

The correlation matrix for Sample 5 is shown in Table 26.

Table 26: Correlation A Matrix Sample 5: Forwards for 3 Years

	Salary	Rus/Czech
Salary	1.000	
Rus/Czech	0.031	1.000

For Sample 5: N = 750 Values greater than 0.071 are significant at $p > 0.05$.

Table 27: Regression A Sample 5: Forwards for 3 years

Dependent Variable Salary

	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Rus/Czech.....	-176.00	68.53	-2.568	0.01
Constant.....	780.42	15.33	50.91	0.000
R-Square.....	0.0061			
D.F.....	1066			
Rho.....	0.92068			

In the regression equation 5A (see Table 27), the Rus/Czech variable is significant at $p < 0.05$, but explains only 0.61% of the variation in salary. There is a negative impact for forwards from a transitional economy which does not support control hypothesis 2a (There will be a negative relationship between the position of defenceman and salary when compared to forwards. The difference in salaries for all transitional players was negative \$110,060.00. Forwards are showing a negative

impact of \$176,000. If Russian and Czech forwards were less affected these results should be similar to Sample 1 results. However, when the performance and control measures are used the negative effects of being a Russian or Czech forward are not significant (see Table 28).

The regression equation using controls is shown in Table 28. The Rus/Czech variable is negative and insignificant (negative \$6,793 at $p = 0.815$).

Table 28: Regression D Sample 5: Forwards 3 Years
Dependent variable: Salary

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	-6.793	29.05	-0.234	0.815
Age.....	24.335	2.688	9.054	0.000
Draft Round.....	-14.252	2.093	-6.810	0.000
Team Payroll.....	19.175	0.739	25.95	0.000
Total Points.....	14.615	0.415	35.19	0.000
Penalty Mins.....	-0.423	0.07	-6.044	0.000
Constant.....	-582.71	67.23	-8.668	0.000
R-Square.....	0.7728			
D.F.....	743			
Estimated Rho	0.6409			

Control Hypotheses C5-C7

The control hypothesis C5 (There will be a positive relationship between goals scored and a player's salary) was tested in the regressions for each sample. The results of the goals variable are summarized in Table 29. All of the regressions using goals resulted in a positive effect on salary which supports hypothesis C5. The magnitude of the effect is similar for all samples except when tested using the five year sample (2).

<u>Sample:</u>	<u>Impact on Salary (in US\$)</u>	<u>p-value</u>
1: 3 years.....	26,870	0.001
2: 5 years.....	10,776	0.001
3: Russians.....	28,028	0.001
4: Czechs.....	27,682	0.001
5: Forwards.....	24,615	0.001

The regressions using assists as the performance measure yielded conflicting results (see Table 30). The impact on salary for the five year sample was negative \$351 compared to the positive impacts seen in the other samples. Control hypothesis C6 (There will be a positive relationship between a player's salary and the number of assists they achieve) is supported when testing the three year samples, but not for the five year.

Table 30: Assists Variable

<u>Sample:</u>	<u>Impact on Salary (in US\$)</u>	<u>p-value</u>
1: 3 years.....	21,003	0.001
2: 5 years.....	- 351	0.001
3: Russians.....	20,997	0.001
4: Czechs.....	21,648	0.001
5: Forwards.....	20,491	0.001

Results for the total points variable are summarized in Table 31. Similar to the assists variable, the control hypothesis C7 (There will be a positive relationship between a player's salary and their total points) is not supported when tested using the five year sample.

Table 31: Total Points Variable

<u>Sample:</u>	<u>Impact on Salary (in US\$)</u>	<u>p-value</u>
1: 3 years.....	15,849	0.001
2: 5 years.....	-450	0.001
3: Forwards.....	14,615	0.001
4: Russians.....	16,218	0.001
5: Czechs.....	16,279	0.001

The penalty minutes variable was tested in all regression equations containing performance variables. The results (see Table 32) contradict control hypothesis C8 (There will be no relationship between penalty minutes and salary). Each of the equations tested shows a negative effect for penalty minutes at the 95% confidence level or above.

Table 32: Penalty Minutes Variable

<u>Sample:</u>	<u>Regression Equation:</u>	<u>Impact on Salary (in US\$)</u>		
		B (Goals)	C (Assists)	D (TP)
1: 3 years	-285***	-497***	-525***
2: 5 years	-323***	-350***	-449***
3: Russians	-310***	-497***	-618***
4: Czechs	-163*	-391***	-392***
5: Forwards	-252**	-341***	-423***

* p<.05
 ** p<0.01
 ***p<0.001

Chapter 5: Discussion

A discussion of the results will be presented in this chapter. Implications for the NHL and Russian and Czech leagues will be included, as well as a brief discussion of the limitations of this study.

International Human Resource Model

The results from the regressions analyses have shown that there are salary differences between players from transitional economies and players from North America and Western Europe. Saha's (1993) model of International Human Resources which suggests that there would be differences in the compensation levels of players based on the varying national characteristics of their home country, was supported. Previous research has shown that "[preferences] for compensation systems and bonuses are clearly linked to cultural attitudes..." (Schneider, 1988, p.238). Expectancy theory supports this in that the value placed on expected outcomes is dependent on the rewards that motivate a given culture (Adler, 1973).

The assumption of previous NHL research (Jones and Walsh, 1988; Longley, 1995) that discrimination was the root of salary discrepancies can be questioned. These studies did not take into consideration the effects of other compensation factors. For example, players have accepted salaries that were lower than what teams in the United States had offered them so that they could stay in Canada (CBC Tel, 1997).

Hypotheses 1-4

The hypotheses to be tested by the survey could not be substantiated because of the low number of respondents. Economic, political, and cultural factors are assumed to have had an impact on the transitional players' decisions to play in the NHL. The literature presented by Saha (1993) and Tung and Havlovic (1996) suggests that national characteristics would be integral in the decision process in terms of creating the expectations that a player would have regarding their compensation. The surveys that were returned do suggest that the players felt that their salaries were equitable in comparison to others from their home country, but not in comparison to players in North America. Again, no conclusions can be made due to poor survey response.

Hypothesis 5 and 6

Hypothesis 5, is supported in that the three year sample showed that players from transitional economies received salaries that were less than players from North America or Western Europe. The initial salary is affected by the national characteristics of the country that the player is from (see Tables 33 and 34).

Table 33: Regression Coefficient for Rus/Czech (no control variables)

<u>Sample</u>	<u>Variable</u>	<u>Impact on Salary (in US \$)</u>	<u>p-value</u>
1 All Players 3 years:	Rus/Czech.....	-110,060	0.05
2 All Players 5 Years:	Rus/Czech.....	107,100	0.001
3 Russians 3 Years:	Rus.....	-176,000	0.01
4 Czechs 3 Years:	Czech.....	-93,510	0.189
5 Forwards 3 years:	Rus/Czech.....	-152,040	0.01

Table 34: Sample 1 - Regression Coefficient for Rus/Czech

<u>Regression</u>	<u>Impact on Salary (in US\$)</u>	<u>p-value</u>
B (Goals).....	-36,425	0.001
C (Assists).....	-63,113	0.001
D (Total Points).....	-55,256	0.001

Discrimination, as defined as a prejudice against a specific nationality, is not expected to be the cause of these lower salaries. As can be seen in Table 33, the differences between transitional players and all others becomes positive in the five year sample. Results from Sample 2 (see Table 35) support Hypothesis 6 in that no significant differences are observed when the salaries of those from Russia and the

Czech Republic who have played in the NHL for at least five years are compared against all other players who have played in the NHL for at least five years.

Over time, players from Russia and the Czech republic will have no difference in their salaries when compared to North Americans or Western Europeans. The significant increase in the transitional players' salaries over those from non-transitional countries can be explained in terms of the talent levels of those players from Russia and the Czech Republic: the players from Russia and the Czech Republic are typically the best players from their countries and are among the elite in the NHL. Once performance variables are introduced, the numbers become insignificant for Russian and Czech players.

Table 35: Sample 2 - Regression Coefficient for Rus/Czech

<u>Regression</u>	<u>Impact on Salary (in US\$)</u>	<u>p-value</u>
B (Goals).....	779	0.969
C (Assists).....	11,057	0.566
D (Total Points).....	-14,954	0.437

This supports the theory that the differences in salary are due to the influence of the home country and not discrimination. The second contract that is signed by a player occurs after the player is more aware of salary levels in the NHL in general

and the salaries of players with comparable performance statistics. If discrimination were a factor it would be expected to continue over time. It is possible that there is a prejudice in the hockey community about the ability of players from Russia and the Czech Republic to play in the NHL. It has been suggested in the media that these players are not as tough as North Americans because the style of game in Europe is different from that of the NHL. However, if this bias does exist, the draft round variable was expected to control for it. If players from Russia and the Czech Republic are considered to be risks (not as reliable in their performance as compared to North Americans or Western Europeans) it would be logical that they would not be drafted as high as someone from North America or Western Europe.

Hypothesis 7

Hypothesis 7, which tested for a more severe negative impact on Russian players' salaries than on those of Czech, was refuted. The initial regression (A) showed significant results, but once the control measures were included in the regression equation, the Russian variable decreased considerably and was insignificant with p-values above 0.05 (see Table 36). By comparing the results of the same base equation (B) for the first sample (all players for three years) which has a significant result of negative \$36,453 and the Russian Sample (4B) which has a result of negative \$16,819 which is not significant, it can be seen that the Czechs are most likely skewing the results of Sample 1. Therefore, Hypothesis 7 which proposes that the negative

impact on a Russian player's salary will be greater than the negative impact on a Czech's is not supported. The same conclusion is made when examining the results for regression equations C and D, which used assists and total points respectively.

Table 36: Results for Sample 3 and 4 - Regression Coefficients for Russian and Czech

Regression	Russian		Czech	
	<u>Impact on Salary</u> (in US\$)	<u>p-value</u>	<u>Impact on Salary</u> (in US\$)	<u>p-value</u>
B (Goals).....	-16,819	0.4	-128,650	0.000
C (Assists).....	-38,928	0.05	-82,435	0.006
D (Total Points).....	-36,066	0.08	-101,990	0.003

The hypothesis that Russians would accept lower initial salaries than Czechs was based on the poor economic and political situations in Russia. These national characteristics do not appear to have had as much impact as originally thought. It is possible that the cultural factor played a more significant role and that Russians expect salaries that are just as high as those of North Americans.

In general, Russians have been described as having admiration for anyone who can get ahead economically. In Russia, the laws protected the state and not the individual which led to corruption to beat the system (Tongren, 1995). Coupled with what Lewis (1996) describes as a success ethic very similar to North Americans, this could be influencing the Russians more than expected. The organization or authority

figure, from the Russians' point of view is the hockey team, therefore, Russians may bargain harder and expect to take what they can get to get ahead.

Another explanation is the esteem with which Russians are held by members of the hockey community. The Russians have been one of Canada's greatest rivals and were, until the recent rise of the United States, thought of by many Canadians to be the second greatest hockey nation. The 1972 Canada Cup is still considered to be one of the greatest hockey battles ever waged. This tournament and other international performances by the Russian team would have made an impression on many of the General Managers and Coaches in the NHL, it is possible that they have a more favorable view of Russians than they do of Czechs. In addition, several of the Russian players have competed at Junior level competitions where scouts for the NHL teams could have assessed the players' performances. Having more familiarity with these Russian players may create a perception that they are less of a risk than Czech players (the NHL teams are more confident that the Russian players can perform well in the NHL) which is reflected in the Russian players' first salaries.

Performance Measures and Control Variables:

Control Hypotheses C1-C4

Control hypothesis C1, that a player's salary will increase as they get older, is supported. Players with more experience are more valued and therefore, they are paid higher amounts. The salaries of players with more experience were expected to be higher to reflect the knowledge and experience that they bring to the game. Players from both the NHL and players from transitional countries who have international experience are assets to their teams because they bring with them more game experience than younger players. Since most players enter the sport at an early age and proceed through similar junior levels before entering the elite level in their respective countries, their age is a good representation of the amount of experience that they have had.

As discussed previously, defencemen and forwards have different performance criteria which, for defencemen, is not reported as thoroughly as for forwards. This means that the performance statistics do not accurately reflect a defenceman's performance. Control hypothesis C2 which claimed that defencemen would be paid less than forwards was supported when using assists and total points as the performance measures, but was refuted when using goals. This contradiction is the result of defencemen being paid more after controlling for offensive performance. It has been suggested that there is a bias towards scoring goals [as opposed to good

defensive play] which is being rewarded (Houlihan, 1997). This is why when only forwards are compared, the differences between transitional and non-transitional players' salaries decreases. As previously stated, the inability to measure the performance of defencemen is largely due to the fact that the statistics available are better measures of offensive play.

The regression tests support Control Hypothesis C3 that with each successive round that a player is drafted in, he will receive less compensation. The draft structure is designed so that the NHL teams choose, in order, those that they feel have the most potential, therefore, players that are drafted in early rounds will be offered contracts with higher salaries based on the expectation that they will perform at a higher level than those selected in later rounds.

Control Hypothesis C4 is supported by the regression results that show an increase in total team payroll will result in a positive increase in a player's salary. There are two conclusions that can be drawn from this finding. The first is that the market in which the team operates will have an impact on salaries. Teams with higher revenues will be able to pay higher salaries and therefore, provide the compensation levels expected by the more skilled players. The second conclusion is that each successive negotiation will increase the salary of the team: players who negotiate after a large contract has been signed will expect a salary that reflects their performance in comparison to the player that has just signed.

Performance Hypotheses C5-C8

Control Hypothesis C5, which states (player's salary will increase with an increase in the number of goals that they score) is supported. Table 29 in the results section presented the goals variable results for all five of the regressions. Each sample shows an increase in salary for each goal scored. However, the increase is approximately \$16,000 less for the five year sample. One possible explanation is that players who have been in the league for at least five years have signed at least a second contract. Their compensation reflects an expectation that they will score a certain number of goals and that the value added of each goal after this amount is less. The second explanation is related to the age variable that has already been discussed. Players who have been in the NHL, whether they are forwards or defencemen, will be paid in relation to their experience.

The results of the assists variable for all samples, as with the goals variable, show that the five year sample is significantly different from the others (see Table 30 in the results section). There is a negative effect of \$351 on players for each assist. As previously discussed, there appears to be a bias toward those who can score goals. The differences between the five year sample and the three year sample in terms of goals and assists are evidence of a philosophy that goals are valued more highly than other types of performance.

As seen in the regressions using assists as the performance measure (see Table 30), the total points variable has a positive effect on the salary of a player for the three year samples, but a negative effect for the five (see Table 31 in the Results section). As total points is the sum of goals and assists it is reasonable to conclude that the explanation for the negative effect of the assists variable are the same as for the total points variable.

Control Hypothesis C8 (There will be no relationship between a player's salary and the number of penalty minutes that they receive) was not supported. There is a significant negative impact on a player's salary as their number of penalty minutes increases (see Table 32 in the results section). This sample shows a decrease in salary with total points. Similar to the assists and total points variables, the penalty minutes variable, is not as valued as goals. The advantage given to the other team during a penalty is not just the advantage of having an extra skater on the ice, it can mean that the most skilled players are the ones in the penalty box. This explains the negative relationship between penalty minutes and a player's salary: It is the job of skill players to be on the ice, not in the penalty box (Houlihan, 1997).

Implications

The importance of these results is different for each of the distinct groups involved. For the Russian and Czech hockey leagues the implications are that they may be able to retain some of their talented players with salaries that are higher than those that they are currently paying, but not as high as those in the NHL. Keeping talented players will be important for their future development as having role models within the country can be encouraging to young athletes.

For the NHL, there is a need to bring in highly skilled players from Europe to maintain the current skill level of players in the league. Expansion into the year 2000 will create a "...huge danger..." (Jamieson, 1997) that the league will be watered down in terms of "... the quality of talent..." (Jamieson, 1997). If the dispersal of talent is not equal across teams there will be a danger of teams experiencing poor attendance by fans, decreased television audiences, and decreased merchandise sales which would result in losing revenue. The result of losses in revenue has already been seen in smaller markets in Canada. Both the Quebec Nordiques and Winnipeg Jets franchises have moved to the United States in order to remain financially viable (CBC Tel, 1997). If the NHL is to avoid these potential issues and continue to be attractive to players from Russia and the Czech Republic, initial salaries will have to be comparable to those of North American and European players.

The Pittsburgh Penguins have recognized this need for new talent and have entered into a joint venture with Russia's Central Red Army (Business America, 1993). In addition to providing the Russians with needed development funds, the Penguins are able to send some of their players to Russia to gain experience.

The appraisal issues in regards to defencemen are similar to any performance where subjective analysis is required. The apparent lack of value placed on defensive aspects of the game will result in players focusing on their offensive play because this is what is being rewarded. As with any discrimination in sports, these biases are created by the fans, media, coaches, and general managers (Longley, 1995). In this instance the league should consider the direction it wants to head in. If exciting play, such as goal scoring, is critical to attracting and maintaining fans, then other aspects of the game should be examined. For example, implementing a rule that requires a team to have at least one shot on goal within a certain time frame. This would be similar to basketball's thirty second clock. More realistically, the league could change rules that hinder the play, such as the man in the crease rule.

Limitations

Limitations to this study were the results of unavailable information and the unique nature of the subjects tested. The hypotheses relating to the International Human Resource Model were not tested and, therefore, did not confirm the aspects that were thought to be important to the players ⁶.

A further limitation to the model was the reliance on literature to determine which national aspects would be most influential. For example, it was assumed that economic conditions are worse in Russia than in the Czech Republic, however, economic conditions in Russia may be exaggerated because the black market isn't taken into consideration and production was over-reported in the communist era to meet plan targets; while it is now underreported to avoid paying taxes (Brown, 1995).

The results of the regression may have been affected by the nature of the sample. Salary increases in the NHL are larger than normal groups. Because of the

⁶ Two incidents were partially responsible for the poor response rate of the survey. The first was the shooting death of the president of the Russian Ice Hockey Federation, Valentin Sych, on April 22, 1997 (Adams, 1997, 5). It is assumed that this incident would have caused players to become hesitant about responding to a survey that was asking about their home country and their salaries. The second incident was the limousine accident in Detroit on Friday June 13, 1997 in which Russian players Vladimir Konstantinov and Slava Fetisov were injured. Not only were these two individuals unable to respond to the survey, several other Russian players went to Detroit to offer support to the injured players and their families.

rookie salary cap, extremely talented players will experience a huge increase in their second contracts. In addition, as was discussed previously, it is possible that past rivalries with the Russians, for example the 1972 Canada cup, may be why the negative impact on the salaries of Russians is not as great as the negative impact on salaries of Czechs; ie., the Russians have a better reputation in North America than the Czechs. The archival data allows for no means of determining this, and, as the players themselves were not represented, there was no way to determine if this was the case.

Another limitation of the regression was the data. There were too few Czechs to test their salaries with any statistical validity. The data may also have been affected by the labour dispute between the owners and players in 1994 which resulted in a shortened season. Only 48 games, instead of the usual 80, were played (Cimini and Muhl, 1995). Finally, the "the regression approach to estimating discrimination in sports may lead to biased estimates if the researcher is not able to measure performance accurately" (Kahn, 1991, p. 398). There are two issues relevant to the performance measures. First the defensive aspect of the game is not measured sufficiently. Statistics focus mainly on the offensive aspects of the game. Secondly, an individuals' performance is not independent of his teammates. Players depend on the ability of their teammates to make plays which present them with scoring opportunities and to finish plays which would result in an assist.

The regression results, although explaining a large amount of the variation in salary, may also have been limited by factors that were unaccounted for. The first

The regression results, although explaining a large amount of the variation in salary, may also have been limited by factors that were unaccounted for. The first could be the impact that the player's agent has on negotiations. As the researcher was unable to get a complete listing of all of the players' agent, they were not controlled for in the regression equations. It was assumed that agent skill would partially be controlled for by draft round as top agents would be more likely to sign top players. In addition, top players should be able to get attention from top agents.

Other variables that could not be readily measured relate to the personal traits of the players that would increase their value in the eyes of management. For example, qualities such as leadership and community service. Two examples of these would be Mark Messier and Trevor Linden of the Vancouver Canucks: Messier for the leadership and motivational skills that he brings to a team and Linden for his charity work that promotes goodwill within the community.

Conclusions and Future Research

The significance of the results of this study are that they suggest that expatriates coming to work in North America will be influenced by their home country's national characteristics when making compensation decisions. If these expatriates view their total compensation packages as including the benefit of being able to live and work in North America, they may accept salaries that are lower than the market value in order to live in North America. More specifically, they may

increase competition in the job market which could result in lower salaries for professional occupations.

Further research needs to be done to investigate this generalization. Other populations of professionals from Russia and the Czech Republic should be tested to determine if their salaries reflect the same characteristics as those of Russian and Czech hockey players. In addition, expatriates from other countries should be studied to determine if the model is generalizable across all countries or if it is unique to transitional and communist countries.

To continue to understand the labour dynamics in the NHL, future time series should be done on the same players to determine if their salary levels become equitable. At this point in time there should be more Czech players which will give a statistically valid sample size. In addition, the next three years' salary data should be analyzed to determine if the starting salaries of Russian and Czech players increases to the same level as players from North America and Western Europe. A compensation study could also be done on Russian and Czech players in Western European leagues.

In conclusion, there is enough evidence to support the hypothesis that hockey players from Russia and the Czech Republic will accept lower salaries than North Americans and Western Europeans when entering the NHL. This initial salary represents an opportunity cost and demonstrates that these players are considering more than just financial rewards when looking at their compensation packages. Even though it could not be disproved that discrimination exists in the NHL, it does not seem likely that Russian and Czech players are discriminated against because their salary levels increase to the levels of North American and Western European players over the five year time period. Whether this increase is due to a learning curve on the part of the players or a matter of having to prove themselves, has not been determined. More importantly, however, is the need for the NHL to realize the importance of these players for the future of the league. Steps should be taken to ensure the development of highly skilled players in both North America and Europe so that future hockey fans will be able to enjoy the game at the skill level that we see today.

Appendices

Appendix 1: Transfer Payments made to Russia

Transfer Payments in US\$1000's						
		<u>Signed at age</u>				
<u>Draft</u>	<u>Position</u>	<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22+</u>
First	1-5	450	400	350	300	200
First	6-13	400	350	300	250	200
First	14-plus	350	300	250	225	200
Other Rounds		300	275	250	225	200

Adams, 1993

Appendix 2: Survey
NHL SALARY FAIRNESS SURVEY

This questionnaire has three parts and will take approximately 5 minutes to complete. Each section provides a brief description of the purpose of the questions. The term home country refers to Russia, where you played hockey before coming to North America. Please answer all questions.

SECTION A

The purpose of this section of the survey is to determine which factors influenced your decision to come to live and work in North America. Please circle the number for each item that accurately indicates how much you were influenced by the factor.

	Did Not influence	Slightly influenced	Moderately influenced	Strongly influenced	Very Strongly influenced
1. Political instability in your home country.	1	2	3	4	5
2. Economic instability in your home country.	1	2	3	4	5
3. Greater personal safety for yourself in North America.	1	2	3	4	5
4. Greater personal safety for your family.	1	2	3	4	5
5. Greater career opportunities in North America.	1	2	3	4	5
6. Higher salary opportunities in North America.	1	2	3	4	5
7. Greater personal freedom.	1	2	3	4	5
8. Greater access to goods and services.	1	2	3	4	5
9. Standards (skill level) of the players in the National Hockey League.	1	2	3	4	5
10. Poor relationships with members of the hockey organization in your home country.	1	2	3	4	5
11. New experiences.	1	2	3	4	5
12. Greater enjoyment of work.	1	2	3	4	5
13. Greater enjoyment of life.	1	2	3	4	5
14. Greater opportunities for family.	1	2	3	4	5

Please list any additional factors that influenced your decision to come to live and work in North America.

SECTION B

The purpose of this section of the survey is to determine your preference for living in your home country or North America. Please mark the appropriate box below.

1. Do you maintain a residence in your home country?

YES NO

2. Are you planning to return to your home country to live permanently after retiring from the National Hockey League?

YES NO

If YES please go on to part C. If NO please answer question #3.

3. Would you consider living in your home country if there was a change in any of the factors that affected your decision to come to live and work in North America?

YES NO

If YES please list the factors that would have to change in order for you to consider returning to your home country.

SECTION C

The purpose of this section of the survey is to determine if you believe that you are paid fairly. Please mark the appropriate box below.

1. Do you believe that you are paid fairly compared to North American players in the NHL?

YES NO

2. Do you believe you are paid fairly compared to players from your home country in the NHL?

YES NO

3. Overall, do you believe that you **are** paid fairly?

YES NO

If you have had more than one contract, please answer question #4.

If this is your first contract you have completed the survey. Thank-you.

4. Do you believe you **were** paid fairly when you first entered the NHL (first salary)?

YES NO

THANK-YOU FOR PARTICIPATING IN THIS IMPORTANT RESEARCH STUDY.

Appendix 3: List of All Players used in Regression Analysis

(LAST NAME, first initial)

Player	CHASSEd	DRURYt	HEINZE _s
ADAMSG _g	CHELIOS _c	DUCHESNE _s	HOGUE _b
ALBELINT _t	CHIASSON	DUFRESNEd	HOLIK _b
AMONET _t	CHORSKE _t	EAGLESM _m	HOUDAd
ANDERSSONm _m	CHURLAS	EASTWOODm _m	HOUGHm _m
ANDREYCHUKd _d	CHYNOWETHd	ELIK _t	HOULDER _b
ARNOTTj _j	CICCARELLId	ELLETd	HOUSLEY _p
AUDETTEd _d	CICCONEE _e	EMERSONn _n	HUARD _b
BABYCHd _d	CLARKw _w	ERREY _b	HUGHES _b
BAKERj _j	COFFEY _p	EWENT _t	HULL _b
BARNABYm _m	CORBETr _r	FALLOONp _p	HULLj _j
BARNESs _s	CORKUM _b	FEATHERSTONE	HUNTERd _d
BARONm _m	CORSONs _s	FEDEROV _s	HUNTERt _t
BASSENb _b	COTES _s	FERRAROr _r	JAGRj _j
BAUMGARTNER	COURTNALLg _g	FETISOVv _v	JANNEYc _c
BELLOWSb _b	COURTNALLr _r	FITZGERALDt _t	JANSSENSm _m
BERGb _b	CRAIGm _m	FLATLEY _p	JOHANSSONc _c
BERUBEc _c	CRAVENm _m	FLEURYt _t	JONESk _k
BEUKEBOOMj _j	CROSSc _c	FOOTEa _a	JONSSONk _k
BLAKER _r	CULLENj _j	FORSBERGp _p	JOSEPHc _c
BODGERd _d	CUMMINsj _j	FRANCISr _r	JUNEAUj _j
BONDRAp _p	CUNNEYWORTH	GAGNERd _d	KAMENSKYv _v
BONKR _r	CZERKAWSKI _m	GALLEYg _g	KAMINSKIy _y
BOURQUER _r	DAHLENU _u	GARPENLOVj _j	KARIYA _p
BRADLEYb _b	DAHLk _k	GARTNERm _m	KARPA _d
BRASHEARD _d	DAIGLEa _a	GELINASm _m	KARPOVTSEV _a
BRIND'AMOURr _r	DAIGNEAULTj _j	GILCHRISTb _b	KASPARAITISd _d
BRISEBOISp _p	DANEYKOK	GILLt _t	KEANE _m
BROWNd _d	DAWEj _j	GILMOURd _d	KENNEDY _s
BROWNj _j	DAZEE _e	GODYNYUKa _a	KHRISTICHd _d
BRUNETb _b	DEADMARSHa _a	GRANATO	KINGd _d
BRYLINS _s	DEANK _k	GRATTONc _c	KINGk _k
BUCHBERGERk _k	DEBRUSKI	GRAVESa _a	KLATTt _t
BUREAUm _m	DESJARDINSe _e	GREENt _t	KLIMAp _p
BUREp _p	DIDUCK	GRETZKYw _w	KONOWALCHUKs _s
BUREv _v	DIMAIO _r	GRIMSONs _s	KONSTANTINOVv _v
BURRIDGER _r	DINEENk _k	GROSEK _m	KOROLEV _i
BURRs _s	DiPIETROp _p	GUERINb _b	KOVALENKOa _a
BURTa _a	DOLLASb _b	GUSAROV	KOVALEV _a
CARBONNEAUg _g	DOMIt _t	HAMRLIKr _r	KOZLOVv _v
CARKNERt _t	DONATOt _t	HANNAND _d	KRAVCHUKi _i
CARNEYk _k	DONOVANs _s	HARVEYt _t	KRIVOKRASOVs _s
CARPENTERb _b	DRAKEd _d	HATCHERd _d	KRONr _r
CASSELSa _a	DRAPERk _k	HATCHERk _k	KRUPPu _u
CHAMBERSs _s	DRIVERb _b	HAWERCHUKd _d	KRUSEp _p
CHASEk _k	DRUCEj _j	HEDICANb _b	KRYGIERt _t

KUCERAf	MIRINOVd	PRONGERc	STRAKAm
KURRIj	MIRONOVb	QUINTALs	STUMPELj
LACHANCE	MODANOm	RACINEy	SULLIVANm
LACROIXd	MODRYj	RANHEIMp	SUNDINm
LAFONTAINEp	MOGILNYa	RATHJEm	SUTERg
LAPOINTEc	MOMESSOs	RAYr	SUTTERb
LAPOINTEm	MOREj	RECCHI	SVOBODAp
LARIONOVl	MULLENj	REEKIEj	SWEENEYd
LeCLAIRj	MULLERk	RENBEGm	SYDORd
LEDYARDg	MUNIC	RICCI	SYKORAm
LEETCHb	MURPHYg	RICEs	TAMERc
LEFEBVRES	MURPHYj	RICHARDSONl	TANCILLc
LEMIEUXc	MURPHYl	RICHERS	THOMASs
LESCHYSHYNc	MURRAYg	RIDLEYm	THORNTONs
LIDSTERd	MURZIND	ROBERTSg	TIKKANNENe
LIDSTROMn	MUSILf	ROBITAILLEl	TINORDI
LINDENt	NASLUNDm	ROENICKj	TITOVg
LINDROSe	NAZAROVa	ROHLOFFj	TKACHUKk
LINDSAYb	NEDVEDp	ROLSTONb	TOCCHETr
LOWEk	NEDVEDz	RONNINGc	TODDk
LOWRYd	NEMCHINOV	ROUSEb	TURCOTTEd
LUDWIGc	NICKOLLSb	RUSSELc	TURGEONp
LUMMEj	NIEDERMAYERr	RYCHELw	TVERDOSKYo
MACINNISa	NIEDERMAYERS	SACCOj	TWISTt
MACIVERn	NIEUWENDYKj	SAKICj	ULANOVl
MACLEANj	NOLANo	SAMUELSSONk	VALKg
MACOUNj	NOONANb	SAMUELSSONU	VANALLEN
MACTAVISHc	NORTONj	SANDERSONg	VASKEd
MALLETTEt	NUMMINENt	SANDSTROMt	VERBEEKp
MALTBYk	OATESa	SAVAGEb	VIALd
MANSONd	ODELEINI	SAVARDd	WEIGHTd
MARCHANTt	ODGERSj	SCHNEIDERm	WEINRICHe
MARCHMENTb	ODJICKg	SELANNEt	WELLSj
MARTINm	OKSUITAr	SEMAKa	WESLEYg
MATTEAUUs	OLAUSSONf	SHANAHAN	WHITNEYr
MATVICHUKr	OLCZYKe	SHANNONdn	WILKINSONn
MAYb	OTTOj	SHANTZj	YASHINa
McCARTHYs	OZOLINSHs	SHEPPARDr	YAWNEYt
McCARTYd	PALLFYz	SILLENGERm	YOUNGg
MCCRIMMONb	PATRICKj	SIMONc	YSEBAERTp
McEACHERNs	PELUSOm	SKRUDLANDb	YUSHKEVICHd
McINNISm	PILONr	SLANEYj	ZAMUNERr
MCSORLEYm	PIVONKAm	SMITHj	ZELEPUKINv
MELANBYs	PLANTED	STAPLETONm	ZETTLERr
MESSIERm	PODEINs	STERNr	ZEZELp
MILLENc	POPOVICp	STEVENSk	ZHAMNOVa
MILLERk	POULINp	STEVENSONt	ZMOLEKd
MILLERky	PRIMEAUK	STEVENSs	ZUBOVs

Appendix 4: Exchange Rates

Exchange Rates: Canadian \$ per \$1.00 US

1992: 1.271

1993: 1.324

1994: 1.403

1995: 1.365

1996: 1.370

Taken from the Monthly Bulletin of Statistics vol. LI, no. 3, March 1997.

Appendix 5: Number of Draft Rounds

<u>Years</u>	<u># Teams = Number of Picks in Each Round</u>
1979.....	17
1980.....	21
1991.....	22
1992.....	24
1993.....	26

Appendix 6: Correlation Matrices for Sample 2 - 5

Correlation for all variables is shown. These variables were not run together in the regressions in order to avoid multicollinearity.

For Sample 2: N = 1480 Values greater than 0.051 are significant at $p > 0.05$.
 Values above 0.70 were set as the cut-off point for all correlation matrices.

Table A1: Correlation Matrix Sample 2: All Variables for 5 Years

	Salary	Rus/ Czech	Age	Position	Draft	Team	Goals	Assists	TP	PIM
Salary	1.000									
Rus/ Czech	0.022	1.000								
Age	0.244	-0.143	1.000							
Position	-0.044	0.074	0.072	1.000						
Draft	-0.079	0.009	0.304	-0.057	1.000					
Team	0.434	0.047	0.355	0.034	0.006	1.000				
Goals	0.348	0.098	-0.107	-0.418	-0.873	-0.019	1.000			
Assists	0.378	0.111	-0.023	-0.125	-0.086	-0.020	0.714	1.000		
TP	0.412	0.113	-0.062	-0.269	-0.917	-0.019	0.894	0.944	1.000	
PIM	-0.081	-0.160	-0.075	0.039	0.679	-0.106	0.005	-0.024	-0.014	1.000

For Sample 3: N = 1068 Values greater than 0.059 are significant at $p > 0.05$.

Table A2: Correlation Matrix Sample 3: All Variables Sample without Czechs for 3 Years

	Salary	Rus	Age	Position	Draft	Team	Goals	Assists	TP	PIM
Salary	1.000									
Rus	0.0747	1.000								
Age	0.186	-0.153	1.000							
Pos	-0.038	0.026	0.077	1.000						
Draft	-0.102	0.097	0.324	-0.031	1.000					
Team	0.307	0.051	0.0271	0.052	0.245	1.000				
Goals	0.483	0.052	-0.041	-0.436	-0.116	0.148	1.000			
Assists	0.562	0.069	0.072	-0.116	-0.101	0.208	0.706	1.000		
TP	0.589	0.064	0.027	-0.269	-0.109	0.199	0.886	0.940	1.000	
PIM	-0.019	-0.086	-0.039	0.007	0.301	0.085	-0.015	-0.055	-0.043	1.000

For Sample 4: N = 1020 Values greater than 0.061 are significant at $p > 0.05$.

Table A3: Correlation Matrix Sample 4: All Variables Sample without Russians for 3 Years

	Salary	Czech	Age	Position	Draft	Team	Goals	Assists	TP	PIM
Salary	1.000									
Czech	-0.041	1.000								
Age	0.212	-0.179	1.000							
Position	-0.019	-0.007	0.079	1.000						
Draft	-0.114	-0.054	0.29	-0.040	1.000					
Team	0.325	-0.055	0.281	0.051	0.985	1.000				
Goals	0.483	0.073	-0.048	-0.425	-0.124	0.149	1.000			
Assists	0.572	0.048	0.055	-0.124	-0.128	0.189	0.709	1.000		
TP	0.595	0.062	0.013	-0.270	-0.128	0.189	0.889	0.939	1.000	
PIM	0.003	-0.15	-0.032	-0.0005	0.418	0.087	-0.03	-0.043	-0.029	1.000

For Sample 5: N = 750 Values greater than 0.071 are significant at $p > 0.05$.

Table A4: Correlation Matrix Sample 5: All Variables Forwards for 3 Years

	Salary	Trans	Age	Draft	Market	Goals	Assists	TP	PIM
Salary	1.000								
Trans	0.031	1.000							
Age	0.147	-0.234	1.000						
Draft	-0.096	0.009	0.382	1.000					
Team	0.320	0.027	0.246	0.008	1.000				
Goals	0.521	0.123	-0.053	-0.188	0.192	1.000			
Assists	0.559	0.116	0.027	-0.168	0.209	0.759	1.000		
TP	0.601	0.124	-0.006	-0.179	0.218	0.908	0.945	1.000	
PIM	-0.009	-0.169	-0.007	0.087	0.084	0.008	-0.038	-0.022	1.000

Appendix 7: Results for Regressions with Natural Logarithm of Salary.

Table A5: Logsal Regression A Sample 1: All players for 3 years				
Dependent Variable Logsal				
	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Rus/Czech.....	-0.0603	0.0484	-1.246	0.213
Constant.....	6.531	0.0165	395.7	0.000
R-Square.....	0.0014			
D.F.....	1123			
Rho.....	0.788			

Table A6: Logsal Regression A Sample 2: All players for 5 years				
Dependent Variable Logsal				
	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Rus/Czech.....	0.0994	0.057	1.744	0.081
Constant.....	6.364	0.0215	296.0	0.000
R-Square.....	0.0021			
D.F.....	1478			
Rho.....	0.80287			

Table A7: Logsal Regression A Sample (3) without Czechs for 3 years
Dependent Variable Logsal

	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Rus.....	-0.0335	0.0485	-0.692	0.489
Constant.....	6.531	0.0164	398.7	0.000
R-Square.....	0.0004			
D.F.....	1066			
Rho.....	0.78202			

Table A8: Logsal Regression A Sample (4) without Russians for 3 years
Dependent Variable Logsal

	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Czech.....	-0.111	0.0972	-1.138	0.255
Constant.....	6.531	0.0168	388.8	0.000
R-Square.....	0.0013			
D.F.....	1018			
Rho.....	0.7985			

Table A9: Logsal Regression A Sample 5: Forwards for 3 years
Dependent Variable Logsal

	<u>B</u>	<u>Beta</u>	<u>T-ratio</u>	<u>p-value</u>
Rus/Czech.....	0.05684	0.0429	1.323	0.186
Constant.....	6.4987	0.0215	302.4	0.000
R-Square.....	0.0023			
D.F.....	748			
Rho.....	0.80146			

Appendix 8: Correlation matrices for Regression Equations using Goals and Assists
 For Sample 1: N = 1125 Values greater than 0.058 are significant at $p > 0.05$.

Table A10: Correlation Matrix B Sample 1: All Players for 3 Years, Goals

	Salary	Rus/ Czech	Age	Position	Draft Round	Team Payroll	Goals	Penalty Mins.
Salary	1.000							
Rus/ Czech	-0.016	1.000						
Age	0.186	-0.211	1.000					
Position	-0.043	0.016	0.083	1.000				
Draft Round	-0.106	0.046	0.321	-0.026	1.000			
Team Payroll	0.313	0.009	0.269	0.047	0.2554	1.000		
Goals	0.482	0.078	-0.049	-0.434	-0.116	0.147	1.000	
Penalty Mins.	-0.006	-0.124	-0.017	0.016	0.299	0.089	-0.009	1.000

Table A11: Correlation Matrix C Sample 1: All Players for 3 Years

	Salary	Rus/ Czech	Age	Position	Draft Round	Team Payroll	Assists	Penalty Mins.
Salary	1.000							
Rus/ Czech	-0.016	1.000						
Age	0.186	-0.211	1.000					
Position	-0.043	0.016	0.083	1.000				
Draft Round	-0.106	0.046	0.321	-0.026	1.000			
Team Payroll	0.313	0.009	0.269	0.047	0.255	1.000		
Assists	0.559	0.077	0.062	-0.128	-0.113	0.205	1.000	
Penalty Mins.	-0.006	-0.124	-0.017	0.016	0.299	0.089	-0.041	1.000

Table A12: Correlation Matrix D Sample 1: All Players for 3 Years

	Salary	Rus/ Czech	Age	Position	Draft Round	Team	Total Points	Penalty Mins.
Salary	1.000							
Rus/ Czech	-0.016	1.000						
Age	0.186	-0.211	1.000					
Position	-0.043	0.016	0.083	1.000				
Draft Round	-0.106	0.046	0.321	-0.026	1.000			
Team Payroll	0.313	0.009	0.269	0.047	0.2554	1.000		
Total Points	0.585	0.081	0.017	-0.278	-0.116	0.941	1.000	
Penalty Mins.	-0.006	-0.124	-0.017	0.016	0.299	0.089	-0.031	1.000

For Sample 2: N = 1480 Values greater than 0.051 are significant at $p > 0.05$.

Table A13: Correlation Matrix B Sample 2: All Players for 5 Years

	Salary	Rus/ Czech	Age	Position	Draft Round	Team Payroll	Goals	Penalty Mins.
Salary	1.000							
Rus/ Czech	0.022	1.000						
Age	0.244	-0.143	1.000					
Position	-0.044	0.074	0.072	1.000				
Draft Round	-0.079	0.009	0.304	-0.057	1.000			
Team Payroll	0.434	0.047	0.355	0.034	0.006	1.000		
Goals	0.348	0.098	-0.107	-0.419	-0.087	-0.019	1.000	
Penalty Mins.	-0.081	-0.160	-0.075	0.039	0.679	-0.106	0.005	1.000

Table A14: Correlation Matrix C Sample 2: All Players for 5 Years

	Salary	Rus/ Czech	Age	Position	Draft Round	Team	Assists	Penalty Mins.
Salary	1.000							
Rus/ Czech	0.022	1.000						
Age	0.244	-0.143	1.000					
Position	-0.044	0.074	0.072	1.000				
Draft Round	-0.079	0.009	0.304	-0.057	1.000			
Team Payroll	0.434	0.047	0.355	0.034	0.006	1.000		
Assists	0.387	0.111	-0.023	-0.125	-0.858	-0.020	1.000	
Penalty Mins.	-0.081	-0.160	-0.075	0.039	0.679	-0.106	-0.024	1.000

Table A15: Correlation Matrix D Sample 2: All Players for 5 Years

	Salary	Rus/ Czech	Age	Position	Draft Round	Team Payroll	Total Points	Penalty Mins.
Salary	1.000							
Rus/ Czech	0.022	1.000						
Age	0.244	-0.143	1.000					
Pos	-0.044	0.074	0.072	1.000				
Draft Round	-0.079	0.009	0.304	-0.057	1.000			
Team Payroll	0.434	0.047	0.355	0.034	0.006	1.000		
Total Points	0.412	0.113	-0.062	-0.269	-0.092	-0.019	1.000	
Penalty Mins.	-0.081	-0.160	-0.075	0.039	0.679	-0.106	-0.014	1.000

For Sample 3: N = 1068 Values greater than 0.059 are significant at $p > 0.05$.

Table A16: Correlation Matrix B Sample (3) without Czechs for 3 Years

	Salary	Russian	Age	Position	Draft Round	Team Payroll	Goals	Penalty Mins.
Salary	1.000							
Rus	0.075	1.000						
Age	0.186	-0.153	1.000					
Pos	-0.038	0.026	0.077	1.000				
Draft	-0.102	0.097	0.324	-0.031	1.000			
Team	0.307	0.051	0.0271	0.052	0.245	1.000		
Goals	0.483	0.052	-0.041	-0.436	-0.116	0.148	1.000	
PIM	-0.019	-0.086	-0.039	0.007	0.301	0.085	-0.015	1.000

Table A17: Correlation Matrix C Sample (3) without Czechs for 3 Years

	Salary	Russian	Age	Position	Draft Round	Team Payroll	Assists	Penalty Mins.
Salary	1.000							
Russian	0.0747	1.000						
Age	0.186	-0.153	1.000					
Position	-0.038	0.026	0.077	1.000				
Draft Round	-0.102	0.097	0.324	-0.031	1.000			
Team Payroll	0.307	0.051	0.0271	0.052	0.245	1.000		
Assists	0.562	0.069	0.072	-0.116	-0.101	0.208	1.000	
Penalty Mins.	-0.019	-0.086	-0.039	0.007	0.301	0.085	-0.055	1.000

Table A18: Correlation Matrix D Sample (3) without Czechs for 3 Years

	Salary	Russian	Age	Position	Draft Round	Team payroll	Total Points	Penalty Mins.
Salary	1.000							
Russian	0.075	1.000						
Age	0.186	-0.153	1.000					
Position	-0.038	0.026	0.077	1.000				
Draft Round	-0.102	0.097	0.324	-0.031	1.000			
Team payroll	0.307	0.051	0.0271	0.052	0.245	1.000		
Total Points	0.589	0.064	0.027	-0.269	-0.109	0.199	1.000	
Penalty Mins.	-0.019	-0.086	-0.039	0.007	0.301	0.085	-0.043	1.000

For Sample 4: N = 1020 Values greater than 0.061 are significant at $p > 0.05$.

Table A19: Correlation Matrix B Sample (4) without Russians for 3 Years

	Salary	Czech	Age	Position	Draft Round	Team Payroll	Goals	Penalty Mins.
Salary	1.000							
Czech	-0.0406	1.000						
Age	0.212	-0.179	1.000					
Position	-0.019	-0.007	0.079	1.000				
Draft Round	-0.114	-0.054	0.29	-0.040	1.000			
Team Payroll	0.325	-0.055	0.281	0.051	0.985	1.000		
Goals	0.483	0.073	-0.048	-0.425	-0.124	0.149	1.000	
Penalty Mins.	0.003	-0.15	-0.032	-0.001	0.418	0.087	-0.002	1.000

Table A20: Correlation Matrix C Sample (4) without Russians for 3 Years

	Salary	Czech	Age	Position	Draft Round	Team Payroll	Assists	Penalty Mins.
Salary	1.000							
Czechs	-0.041	1.000						
Age	0.212	-0.179	1.000					
Position	-0.019	-0.007	0.079	1.000				
Draft Round	-0.114	-0.054	0.29	-0.040	1.000			
Team Payroll	0.325	-0.055	0.281	0.051	0.985	1.000		
Assists	0.572	0.048	0.055	-0.124	-0.128	0.189	1.000	
Penalty Mins.	0.003	-0.15	-0.032	-0.001	0.418	0.087	-0.043	1.000

Table A21: Correlation Matrix D Sample (4) without Russians for 3 Years

	Salary	Czech	Age	Position	Draft	Team payroll	Total Points	Penalty Mins.
Salary	1.000							
Czechs	-0.041	1.000						
Age	0.212	-0.179	1.000					
Position	-0.019	-0.007	0.079	1.000				
Draft	-0.114	-0.054	0.29	-0.040	1.000			
Team payroll	0.325	-0.055	0.281	0.051	0.985	1.000		
Total Points	0.595	0.062	0.013	-0.271	-0.128	0.189	1.000	
Penalty Mins.	0.003	-0.15	-0.032	-0.001	0.418	0.087	-0.029	1.000

For Sample 5: N = 750 Values greater than 0.071 are significant at $p > 0.05$.

Table A22: Correlation Matrix B Sample 5: Forwards for 3 Years

	Salary	Rus/ Czech	Age	Draft Round	Team Payroll	Goals	Penalty Mins.
Salary	1.000						
Rus/ Czech	0.031	1.000					
Age	0.147	-0.234	1.000				
Draft Round	-0.096	0.009	0.382	1.000			
Team Payroll	0.320	0.027	0.246	0.008	1.000		
Goals	0.521	0.123	-0.053	-0.188	0.192	1.000	
Penalty Mins.	-0.009	-0.169	-0.007	0.087	0.084	0.008	1.000

Table A23: Correlation Matrix C Sample 5: Forwards for 3 Years

	Salary	Rus/ Czech	Age	Draft Round	Team Payroll	Assists	Penalty Mins.
Salary	1.000						
Rus/ Czech	0.031	1.000					
Age	0.147	-0.234	1.000				
Draft Round	-0.096	0.009	0.382	1.000			
Team Payroll	0.320	0.027	0.246	0.008	1.000		
Assists	0.559	0.116	0.027	-0.168	0.209	1.000	
Penalty Mins.	-0.009	-0.169	-0.007	0.087	0.084	-0.038	1.000

Table A24: Correlation Matrix D Sample 5: Forwards for 3 Years

	Salary	Rus/ Czech	Age	Draft Round	Team Payroll	Total Points	Penalty Mins.
Salary	1.000						
Rus/ Czech	0.031	1.000					
Age	0.147	-0.234	1.000				
Draft Round	-0.096	0.009	0.382	1.000			
Team Payroll	0.320	0.027	0.246	0.008	1.000		
Total Points	0.601	0.124	-0.006	-0.018	0.218	1.000	
Penalty Mins.	-0.009	-0.169	-0.007	0.087	0.084	-0.022	1.000

Appendix 9: Regression Results for Equations using Goals and Assists.

Table A25: Regression 1B: All Players for 3 Years

Dependent variable: Salary

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	-36.453	15.24	-2.392	0.017
Age.....	36.478	2.036	17.91	0.000
Position.....	207.58	14.18	14.63	0.000
Draft Round.....	-25.409	1.303	-19.50	0.000
Team Payroll.....	19.555	0.701	27.88	0.000
Goals.....	26.870	0.864	31.10	0.000
Penalty Mins.....	-0.285	0.055	-5.160	0.000
Constant.....	-753.27	52.12	-14.45	0.000
R-Square.....	0.760			
D.F.....	1117			
Estimated Rho	0.69274			

Table A26: Regression 1C: All Players for 3 Years**Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	-63.113	17.41	-3.625	0.000
Age.....	29.593	1.848	16.01	0.000
Position.....	-3.645	11.20	-0.3254	0.745
Draft Round.....	-22.137	1.324	-16.72	0.000
Team Payroll	18.341	0.738	24.84	0.000
Assists.....	21.003	0.524	40.06	0.000
Penalty Mins.....	-0.497	0.057	-8.766	0.000
Constant.....	-542.25	45.01	-12.05	0.000
R-Square.....	0.7558			
D.F.....	1117			
Estimated Rho	0.6614			

Table A27: Regression 2B: All Players for 5 Years**Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	0.779	20.18	0.039	0.969
Age.....	51.876	2.581	20.10	0.000
Position.....	83.487	16.85	4.954	0.000
Draft Round.....	-24.227	1.867	-12.97	0.000
Team Payroll.....	27.648	1.140	24.24	0.000
Goals.....	10.776	0.734	14.68	0.000
Penalty Mins.....	-0.323	0.0967	-3.345	0.000
Constant.....	-1169.3	61.94	-18.88	0.000
R-Square.....	0.5999			
D.F.....	1472			
Estimated Rho	0.63879			

Table A28: Regression 2C: All players 5 Years**Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	11.057	19.24	0.575	0.566
Age.....	50.446	2.330	21.65	0.000
Position.....	-28.209	1.730	-16.31	0.000
Draft Round.....	29.385	1.099	26.73	0.000
Team Payroll.....	7.556	0.469	16.09	0.000
Assists.....	-0.351	0.099	-3.531	0.000
Penalty Mins.....	-0.351	0.099	-3.531	0.000
Constant.....	-1137.0	56.39	-20.16	0.000
R-Square.....	0.6338			
D.F.....	1473			
Estimated Rho	0.62561			

Table A29: Regression 3B: Sample without Czechs for 3 Years**Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Russian.....	-16.819	20.18	-0.834	0.405
Age.....	36.748	2.227	16.50	0.000
Position.....	216.27	14.94	14.48	0.000
Draft Round.....	-25.019	1.384	-18.07	0.000
Team Payroll.....	18.152	0.779	23.28	0.000
Goals.....	28.028	0.959	29.23	0.000
Penalty Mins.....	-0.310	0.067	-4.611	0.000
Constant.....	-750.36	57.07	-13.15	0.000
R-Square.....	0.7314			
D.F.....	1060			
Estimated Rho	0.68914			

Table A30: Regression 3C: Sample without Czechs for 3 Years**Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Russian.....	-38.928	20.26	-1.922	0.055
Age.....	31.369	2.008	15.62	0.000
Position.....	-7.171	11.80	-0.608	0.544
Draft Round.....	-22.239	1.459	-15.24	0.000
Team Payroll.....	17.591	0.756	23.27	0.000
Assists.....	20.997	0.560	37.47	0.000
Penalty Mins.....	-0.497	0.054	-9.189	0.000
Constant.....	-577.97	47.42	-12.19	0.000
R-Square.....	0.7426			
D.F.....	1060			
Estimated Rho	0.67138			

Table A31: Regression 4B: Sample without Russians for 3 Years**Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Czech.....	-128.65	18.81	-6.838	0.000
Age.....	42.641	2.213	19.27	0.000
Position.....	223.30	15.54	14.37	0.000
Draft Round.....	-25.337	1.364	-18.58	0.000
Team Payroll.....	18.807	0.7326	25.67	0.000
Goals.....	27.682	0.9158	30.23	0.000
Penalty Mins.	-0.1637	0.07168	-2.284	0.023
Constant.....	-921.20	58.32	-15.79	0.000
R-Square.....	0.798			
D.F.....	1012			
Estimated Rho	0.677			

Table A32: Regression 4C: Sample without Russians for 3 Years**Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Czech.....	-82.435	29.67	-2.779	0.006
Age.....	34.047	2.028	16.79	0.000
Pos.....	34.539	13.25	2.606	0.000
Draft.....	-21.583	1.361	-15.86	0.000
Team.....	19.127	0.887	21.57	0.000
Assists.....	21.648	0.593	36.54	0.000
Penalty Mins.....	-0.302	0.069	-4.391	0.000
Constant.....	-718.35	51.86	-13.85	0.000
R-Square.....	0.7579			
D.F.....	1012			
Estimated Rho	0.62639			

Table A33: Regression 5B: Forwards for 3 Years
Dependent variable: Salary

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	-7.511	23.12	-0.3249	0.745
Age.....	30.487	2.699	11.30	0.000
Draft Rounds.....	-23.719	2.052	-11.56	0.000
Team Payroll.....	22.146	0.845	26.21	0.000
Goals.....	24.615	0.888	27.72	0.000
Penalty Mins.....	-0.253	0.082	-3.074	0.002
Constant.....	-598.61	67.53	-9.237	0.000
R-Square.....	0.7819			
D.F.....	743			
Estimated Rho	0.70514			

Table A34: Regression 5C: Forwards for 3 Years **Dependent variable: Salary**

	<u>B</u>	<u>Beta</u>	<u>T-Ratio</u>	<u>p-value</u>
Rus/Czech.....	-45.155	25.94	-1.741	0.082
Age.....	29.591	2.449	12.08	0.000
Draft Round.....	-18.558	1.786	-10.39	0.000
Team Payroll.....	19.620	1.025	19.14	0.000
Assists.....	20.491	0.682	30.06	0.000
Penalty Mins.....	-0.341	0.095	-3.596	0.000
Constant.....	-598.61	63.15	-9.479	0.000
R-Square.....	0.7265			
D.F.....	743			
Estimated Rho	0.67478			

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