

Does Having Foreign Education Matter? An Analysis of the Interaction
Between Education and Origin of Degree in Predicting Income

by

Ana Raluca Buzdugan

A Thesis submitted to the Faculty of Graduate Studies of
University of Manitoba in partial fulfilment of the requirements of the degree of
Master of Arts

Department of Sociology

University of Manitoba

Winnipeg

Copyright © 2006 by Ana Raluca Buzdugan

THE UNIVERSITY OF MANITOBA
FACULTY OF GRADUATE STUDIES

COPYRIGHT PERMISSION

**Does Having Foreign Education Matter? An Analysis of the Interaction Between Education and
Origin of Degree in Predicting Income**

By

Ana Raluca Buzdugan

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of
Manitoba in partial fulfillment of the requirement of the degree**

Of

MASTER OF ARTS

Ana Raluca Buzdugan © 2006

**Permission has been granted to the Library of the University of Manitoba to lend or sell copies of
this thesis/practicum, to the National Library of Canada to microfilm this thesis and to lend or sell
copies of the film, and to University Microfilms Inc. to publish an abstract of this thesis/practicum.**

**This reproduction or copy of this thesis has been made available by authority of the copyright
owner solely for the purpose of private study and research, and may only be reproduced and
copied as permitted by copyright laws or with express written authorization from the copyright
owner.**

Abstract

In Canada, immigrants have both increasing education levels and decreasing earnings. The devaluation of foreign education in the Canadian labour market is one of the explanations of this paradox. The present study uses 2002 Ethnic Diversity Survey data and examines the value attributed to foreign education for immigrants at different stages of integration. I distinguish between immigrants living in Canada for less and more than 10 years, and compare their economic performance with that of Canadian-born. Results of regression analyses indicate that examining the value of foreign education for immigrants at various stages of integration is pertinent. While immigrants at all stages of integration experience devaluation, it is more visible for those living in Canada for more than 10 years. Immigrants from developing countries experience the most acute devaluation. The findings have implications for the current 'point system' used to select immigrants to Canada and immigrants' social management.

Acknowledgements

I thank my thesis committee for their guidance and assistance. My advisor, Dr. Lori Wilkinson, my internal committee member, Dr. Tracey Peter, and my external committee member, Dr. Xiaoyun Wang, have provided insightful comments and meaningful suggestions to the development of this work. I also want to acknowledge the Manitoba Research Data Centre for supporting my graduate work through a Research Data Centre Graduate Award and provide access to the data used in this project. I am also fortunate to have had the support of many friends and family members who offered their encouragement. Special thanks go to Adi.

Table of Contents

Abstract	i
Acknowledgements.....	ii
Table of Contents.....	iii
List of Tables.....	vi
List of Figures.....	vii
Chapter One: Introduction.....	1
Chapter Two: The Theoretical Implications of Human Capital, Social Capital, Screening Hypothesis, and Labour Market Segmentation.....	9
2.1 Human Capital Theory.....	9
2.2 Social Capital Theory.....	13
2.3 Screening Hypothesis.....	16
2.4 Labour Market Segmentation Theories.....	19
2.5 Problems of Human Capital Theory.....	24
2.6 Literature Review.....	25
2.6.1 Immigrants and the assimilation debate.....	25
2.6.2 Immigrants' human capital debate.....	27
2.6.3 Foreign credentials recognition debate.....	29
2.6.4 Immigrants' discrimination debate.....	35
2.6.5 Predictors of economic performance.....	40
2.7 Discussion of research questions.....	46
Chapter Three: Source of Data and Methodology.....	49
3.1 Sampling method.....	49

3.2 Description of the sample.....	52
3.3 Operationalization of variables.....	54
3.4 Discussion of data analysis technique.....	66
Chapter Four: Results and Discussion.....	68
4.1 Results of the univariate analysis.....	68
4.1.1 Differences between immigrants and non-immigrants.....	68
4.1.2 Differences between short- and medium-term immigrants and long-term immigrants.....	75
4.2 Results of the bivariate analysis.....	82
4.3 Results of the multivariate analysis.....	83
4.3.1 Canadian-born and immigrants' economic performance.....	84
4.3.2 Short- and medium-term immigrants and long-term immigrants' economic performance.....	93
4.3.3 Discussion of interaction terms analyses for all immigrants, short- and medium-term immigrants, and long-term immigrants.....	98
4.4 Discussion.....	106
4.4.1 Discussion of theoretical implications.....	106
4.4.2 Discussion of implications to immigration literature.....	110
4.4.3 Discussion of policy implications.....	112
Chapter Five: Conclusion.....	115
5.1 Review of findings.....	115
5.2 Policy implications.....	118
5.3 Suggestions for future research.....	122
5.4 Concluding remarks.....	124

References.....	126
Appendices.....	135
Appendix A. 'Point system' for selecting skilled worker immigrants, Canada.....	135
Appendix B. Correlation matrix of the independent variables for Canadian-born population.....	136
Appendix C. Correlation matrix of the independent variables for immigrant population.....	136
Appendix D. Correlation matrix of the independent variables for short- and medium-term immigrant population.....	137
Appendix E. Correlation matrix of the independent variables for long-term immigrant population.....	137

List of Tables

Table 1: Operationalization of dependent and independent variables.....	56
Table 2: Means, standard deviations, and factor loadings for the measure of official languages proficiency.....	60
Table 3: Mean, median, standard deviation, skewness, and kurtosis values for interval level variables.....	69
Table 4: Difference of means and t-test of significance, for interval level variables.....	71
Table 5: Cross-tabulations and chi-square test of significance for immigrants and non-immigrants for nominal variables.....	72
Table 6: Cross-tabulations and chi-square test of significance for short- and medium-term as well as long-term immigrants, for nominal variables.....	77
Table 7: Correlation coefficients of income and selected interval independent variables, for four populations (Canadian-born, immigrants, short- and medium-term immigrants, long-term immigrants).....	79
Table 8: Mean income (dollars) by selected nominal independent variables, for four populations.....	80
Table 9: Unstandardized and standardized regression coefficients for predictor variables on income, Canadian-born and foreign-born individuals sample.....	85
Table 10: Unstandardized and standardized regression coefficients for predictor variables on income, short- and medium-term immigrants and long-term immigrants sample.....	87
Table 11: Unstandardized and standardized regression coefficients for predictor variables on income, all immigrants, short- and medium-term immigrants, and long-term immigrants sample.....	99

List of Figures

Figure 1: Interaction term: education by origin of degree, all immigrants.....	101
Figure 2: Interaction term: education by origin of degree, long-term immigrants.....	102

Chapter One: Introduction

As a part of a global society, Canada is concerned with its place in the world economy. Its immigration policy is framed largely in response to the need to maintain an economic advantage in the global market, and thus aids in increasing Canada's international competitiveness. It is argued that this is the result of the reading of globalization from a neo-liberal standpoint, which values individuals simply for their labour market contribution and economic performance (Abu-Laban and Gabriel 2002). This is the view held by most current governments. The most desired individuals are believed to be skilled workers with high human capital. Consequently, by increasing the level of human capital of the labour force, skilled immigration is considered a 'cheap' solution to increase a country's economic growth. Canada needs not bear the costs of educating migrant workers and therefore benefits from their entry in the labour market. Becker (1992: 11) himself, the 'father' of human capital theory, advances this solution and proposes Canada and Australia as examples of countries that implement such endeavors:

The easiest action conceptually, although not politically, would be to reorient immigration policy to admit many more younger, skilled workers. Such newcomers can help alleviate shortages in engineering, nursing, computer programming, and many other fields. Because they would have above-average incomes, they would pay above-average taxes and make few demands on welfare, medicaid, and other transfer programs.

Below I provide figures that show the magnitude of immigration to Canada, and the central role played by skilled workers, who are preferred to family class

immigrants and refugees due to their high human capital and expected economic independence in the Canadian labour market.

From 1996 to 2005, with the exception of 1998 and 1999, when the number of newcomers was below 200,000, more than 215,000 people immigrated to Canada each year. In fact, 2005 registered the highest number of immigrants to Canada in the last ten years (262,236 people) (CIC 2006). Immigrants are either accepted or selected, namely family class immigrants and refugees are accepted, and economic immigrants are selected. Immigrants coming under the family class are accepted based on the belief of the importance of social capital to economic and social integration and of Canadian citizens and permanent residents' rights to reunite with their close family members living in other countries. Refugees are accepted based on humanitarian reasons. Economic immigrants (i.e. skilled workers, business immigrants, provincial/ territorial nominees, live-in caregivers) are selected based on economic criteria. It is the economic class which is the 'preferred' class in the minds of the Canadian government and its citizens, because of their potential in providing much needed labour in our growing economy.

It is argued that while Canada's immigration policy meets various social and demographical needs, "from its inception [it] has been heavily tied to economic criteria, specifically the perceived needs of the Canadian labour market" (Abu-Laban and Gabriel 2002: 37). For example, from 1996 to 2005, economic immigrants represented between 54.7 percent in 2003 and 62.1 percent in 2001 of all immigrant arrivals. The large majority of economic

immigrants are skilled workers, who amount to between 43.3 percent in 1996 and 54.8 percent in 2001 of the total number of immigrants to Canada (CIC 2006).

Skilled workers are selected based on a 'point system' (see appendix A). The 'point system' is indicative of the application of human capital theory in the Canadian immigration policy, as indicated by the high valorization of education, work experience, and official languages proficiency. These characteristics are valued during the immigration selection process because they are believed to yield a high economic performance and because these individuals are expected to integrate more easily in the labour market. These assumptions are based on human capital theory. The present study tests these assumptions by performing an analysis of the predictability of income (as an indicator of economic performance) based on education, work experience, and official languages proficiency, while controlling for other achieved and ascribed characteristics.

The study focuses on education as a human capital characteristic and addresses the following research questions: (1) To what extent does education influence economic performance of immigrants in the Canadian labour market?, (2) How does the effect of education on earnings change depending on the origin or education?, and (3) How does the relationship between education, origin of degree, and income change for the following populations (selected based on immigrant status and period of immigration): a) immigrants; b) short- and medium-term (SMT) immigrants (residents of Canada for less than 10 years); and c) long-term (LT) immigrants (living in Canada for 10 years and more)?.

Throughout the thesis I do not use 'degree' and 'credential' to refer to university degrees only, but to indicate the highest level of education obtained.

I address these research questions by using data from the Ethnic Diversity Survey (EDS)¹, one of the few Canadian datasets that contains information about the country where immigrants attained their highest level of education. The EDS was conducted in 2002 by Statistics Canada and the Department of Canadian Heritage to better understand how Canadians of different ethnic origins interpret and report their ethnicity. The mere existence of this survey is an indication of the ethnical diversity of the Canadian society and the need to understand it.

The first research question focuses on understanding the effect of education on income. I examine the different valorization of education for immigrants and non-immigrants, and for immigrants living in Canada for more and less than 10 years. Education is the most valued human capital characteristic in the selection immigration process. I test this assumption by comparing the impact of education on income to that of foreign work experience and official languages proficiency.

The second research question aims for a more complex understanding of how education influences income. In the immigration process, immigrants are selected based on their level of education alone, irrespective of where education was obtained. I predict that education will remain an important predictor of income, but that this relationship will be moderated by the origin of education. Degrees obtained in developing countries are predicted to experience the most

¹ This study represents the views of the author and does not reflect the opinions of Statistics Canada.

acute devaluation, while degrees obtained in the United States and Europe, (more particularly Western and Northern Europe) are expected to be equally valued to Canadian degrees in the labour market. This distinction falls along racial lines and suggests that the devaluation of foreign credentials is particularly important for visible minority immigrants. While many immigrants experience lack of recognition or devaluation of their foreign education at various levels (i.e. the educational system, the labour market, by professional associations), the analysis performed in this study does not allow such distinctions.

The third research question examines the devaluation of foreign credentials for immigrants at different stages of integration. I distinguish between immigrants living in Canada for less than 10 years, and those who immigrated to Canada 10 years previously or more. This distinction is relevant because immigrants face different challenges at various stages of integration. In the first few years, immigrants' economic success is particularly affected by their lack of Canadian work experience, low proficiency of English and/or French, lack of social networks, and lack of knowledge of the Canadian labour market. While their credentials are devalued from the beginning, this is more apparent for immigrants living in Canada for 10 years or more, because by then they will have already addressed the above-mentioned barriers. Thus, long-term immigrants will have acquired Canadian work experience, speak the official languages, have developed a social network, and understand the mechanisms of the Canadian labour market. Having overcome these difficulties, the difference between long-term immigrants in terms of where they attained their highest level of education becomes more visible and

affects their earnings to a higher degree. If Canadian society was based solely on equality, there should be little difference in the income of long-term immigrants and the Canadian-born.

The present study tests human capital theory and its application to immigration to Canada. Human capital theory is particularly important in the context of Canadian immigration, because it affects immigration policy in two main ways. As explained above, it offers a basis for the current 'point system' used to select immigrants. The very idea of the point system implies that there is a type of immigrant that best suits Canada from an economic standpoint. This 'ideal type' is based on human capital theory's assumptions, as it portrays a "highly-skilled, well-educated, English- or French- speaking, upper class male" (Abu-Laban and Gabriel 2002: 97). Moreover, human capital theory justifies the current focus on the economic performance of immigrants, as many studies on immigration try to assess the economic performance of immigrants, compared to Canadian-born, and between various immigrant groups (i.e. differentiated by gender, visible minority status, admission class, country of origin/ ethnicity). The present study tests human capital theory, especially in terms of understanding the way education affects economic performance. I predict that while human capital theory is an effective theoretical framework in the context of immigrants' economic performance, it has important limitations. In order to address these limitations, I refer to social capital theory, screening hypothesis, and various labour market segmentation theories.

The results of this analysis have implications to a series of immigration research debates. It discusses immigrants' ability to assimilate into the Canadian labour market, their human capital, the value attributed to foreign degrees, and the economic discrimination experienced by women and visible minorities. However, the main focus of the present study is the devaluation of foreign credentials, and how it differently affects white and visible minority immigrants, as well as immigrants at different stages of integration.

Because the current 'point system' used to select immigrants to Canada is based on the assumptions of human capital theory, the present study has important policy implications. If the findings indicate that education, work experience and official languages proficiency have a positive and substantial effect on income, the thesis will support the 'point system' currently used for the selection of immigrants. If results indicate that foreign education is less valued in the Canadian labour market compared to Canadian degrees, the current emphasis on human capital during the immigration application process might be exaggerated and not a useful screening tool for economic success. This assertion can be strengthened by proof of the lack of recognition of foreign work experience.

Strong predictors of economic performance such as gender, visible minority status and origin of degree will suggest that certain groups are disadvantaged in the Canadian labour market, which should be of equal concern to policymakers. Proof of the devaluation of foreign education would lobby for the need of an objective federal mechanism of assessing foreign credentials.

The thesis is organized in five chapters. This first chapter is introductory and presents the topic and the research questions. Chapter two discusses the theoretical implications of human capital, social capital, screening hypothesis, and labour market segmentation, and also reviews the main immigration literature pertinent to this study. Chapter three presents details of the data and methodology used in the analysis. Chapter four examines the main findings. The concluding chapter reviews the main results, along with the theoretical, methodological, practical, and policy implications of the study.

Chapter Two: The Theoretical Implications of Human Capital, Social Capital, Screening Hypothesis, and Labour Market Segmentation

The present study examines the economic integration of immigrants. Human capital theory is one of the most influential theories of economic performance. In the first part of this chapter, I discuss human capital theory, along with other theories of earnings inequality. Social capital theory, screening hypothesis, and labour market segmentation theories offer alternative theoretical frameworks to economic success. In the second part of the chapter, I review findings of the immigration literature and some of its main debates.

2.1 Human Capital Theory

Human capital theory represents “the largest and most influential economic approach to the differences of individual earnings” (Osberg 1981: 98). In short, human capital theory states that education, on-the-job training and other skills result in accumulation of knowledge; this knowledge, along with ability, increase work productivity, which in turn is reflected in the level of earnings (McBride 2000, Osberg 1981, Salamon 1991). Workers who are more educated, skillful, and knowledgeable are more valuable to employers and are paid higher wages as a result. While ability is an ascribed characteristic, knowledge, and training are achieved through various types of education. Along with ability, differences in education, on-the-job training and other skills explain most income variance (Baptiste 2001, Schultz 1971, Skinner 1995). This ensures an equitable distribution of income based on merit. In Becker’s words (1962: 47), “by

definition, the distribution of earnings would be exactly the same as the distribution of ability if everyone invested the same amount in human capital”.

Another way of thinking about human capital is that it represents “activities that influence future real income through the imbedding of resources in people” (Becker 1962: 9). While much has been written on human capital and the theory has undergone important changes, the central idea is still the same: human capital represents an embodied characteristic that requires an investment and yields an economic return (Schultz 1971). Therefore, we can ask what represents a form of human capital? Given that human capital theory has evolved since its beginnings, there are different understandings of human capital. Thus, while Becker (1962: 9) identified “schooling, on-the-job training, medical care, vitamin consumption, and acquiring information about the economic system,” more recent scholars also include “improvements in nutrition, in health, in housing, and in the quality of life” (Salamon 1991: 6). Taken together, these characteristics include the conditions necessary to create a productive worker.

Human capital theory has remained a popular explanation of inequality for several decades. We can distinguish between three main phases of human capital theory (Marginson 1997, McBride 2000). The first phase, in the 1960s, in its most simplistic terms, claims that education leads to productivity, which leads to higher wages and that investment in education leads to economic growth. The second phase, in the early 1980s, states that education augments the capacity to handle new technologies and other innovations, which in turn, increases productivity and economic growth in capitalist societies. The third phase of human capital theory,

in the late 1980s and 1990s, holds that individuals invest in education until costs exceed the anticipated benefits and that the aggregated individual behaviours will produce an optimum amount and quality of human capital for the economy as a whole. The result is higher incomes for those who invest greatly in their human capital and lower incomes for those who do not.

An important distinction of human capital theory is that while some scholars discuss the impact of education on the economic performance of individuals, others look at the returns of education for economic growth (Becker 1962, 1964; Laroche and Merette 1999; Salamon 1991; Schultz 1971). In other words, investments in education are predicted to bring economic growth for both individuals and economies. In this study, I refer to education as a predictor of economic performance of individuals.

Human capital theory was developed mainly by economists, but is frequently used in other disciplines, such as sociology. The theory was framed under "the combined assumptions of maximizing behavior, market equilibrium, and stable preferences" (Becker 1967: 5). According to the economic approach, individuals engage only in activities/ behaviours from which they derive maximum benefit, and their preferences over fundamental aspects of life (i.e. health, prestige, pleasure, envy) do not to change regardless of time, society, or socio-economic position (Baptiste 2001). Societies operate in competitive, free markets, and market mechanisms (i.e. prices) coordinate the actions of people and "perform most, if not all, of the functions assigned to 'structure' in sociological

theories" (Becker 1967: 5). As a result, success or failure is determined only by the individual.

Today, human capital theory has a paramount role. It is the basis from which governments worldwide design their labour market policies and programs. Based on its assumptions, rather than a privilege, education has become a requirement, which has ultimately resulted in the new 'credential society'. Moreover, due to its focus on education, training, and work experience, inequality is justified by individual achievements alone, and consequently the society is believed to operate as a meritocracy. Human capital theory also makes possible a series of assumptions used by people to understand and explain the society we live in. It allows the belief that the unemployed and the poor are lazy and/or unwilling to work. In opposition, intelligent and motivated people are considered worthy of getting better-paid jobs based on their merit. Human capital theory also assumes that all people share the belief that it is logical to invest in education, skills, and work experience to get a good job. Moreover, the labour market is believed to be a meritocracy offering individuals fair rewards to their human capital investments. These assumptions affect the labour market conditions of everyone, including immigrants. Poor or unemployed immigrants are believed to be unwilling to work or further invest in their education. The cause of the income differential between immigrants and non-immigrants is believed to be the immigrants themselves, their lack of motivation, intelligence, or 'quality'.

In the remainder of this section I examine theories that offer alternative explanations to earnings inequality and criticize human capital theory, namely

social capital theory, screening hypothesis, and labour market segmentation theories.

2.2 Social Capital Theory

One critique of human capital theory comes from the emerging social capital theory. It criticizes human capital theory on a number of issues. According to human capital theory, family environment plays an important part in the opportunities one has in investing in human capital. This tenant has been used to criticize the family practices of certain ethnic groups. For example, Becker (1992: 11) explains the differences in the economic performance of various ethnic groups by stating that:

Groups with small families generally spend a lot on each child's education and training, while those with big families spend much less. Japanese, Chinese, Jews, and Cuban families have few children who become well-educated, while Mexicans, Puerto Ricans, and blacks have big families and the education of children suffers.

Social capital theorists criticize this gross overgeneralization. They believe that familial, ethno-cultural, and social networks affect not only the opportunity to invest in human capital, but also labour market performance. Moreover, they claim that it is these networks and not talent or skills that determines employment and mitigates performance. As a result, social capital theory questions the idea of a meritocratic labour market and society, and questions the ability of some members of certain ethnic groups to participate fully in the labour market.

While there are differences in what various scholars understand by social capital, "the consensus is growing in the literature that social capital stands for the ability to secure benefits by virtue of membership in social networks or other social

structures" (Portes 1998: 6). The role of family in the economic success of an individual questions the assumptions of human capital theory of equality of opportunity based solely on education, access to information about available jobs, and the meritocratic nature of society. Having a family with a high socio-economic status can influence the educational and occupational aspirations of the child, provide a higher income and thus better education, provide the cultural capital valued in the educational system and in the labour market, and offer a large influential social network in the labour market (Krahn and Lowe 2002). As a result, family background affects educational attainment and economic performance. This is the mechanism that allows rich families to preserve their wealth and status. Rich families have the means to provide the basic education and most lucrative social networks to their children, thus ensuring wealth remains accessible only to those who are wealthy.

Since Durkheim, group participation has been acknowledged to have positive consequences. However, the novelty of social capital theory is the idea that social networks can represent a form of capital, thus requiring an investment and yielding various benefits, including monetary ones. Moreover, the theory focuses on the positive consequences of sociability. It is believed that individuals who participate most actively in their social networks are the most likely to succeed at obtaining higher wages and employment.

Initially, social capital has been defined as an attribute of individuals (Bourdieu 1986; Coleman, 1988, 1990). However, in the last decade, some scholars have launched the idea of social capital as a property of groups (i.e.

communities, nations) (Putnam 2000). Putnam (2000: 290) defines social capital by the level of civic participation and tries to document in the case of the United States that "social capital makes us smarter, healthier, richer, and better able to govern a just and stable democracy". Portes (1998: 2) is concerned with this application of social capital theory, and warns against this direction of the theory by stating that "the point is approaching at which social capital comes to be applied to so many events and in so many different contexts as to lose any distinct meaning".

Therefore, an important difficulty of social capital theory is the multitude of definitions of social capital (Li 2004). In time, scholars contributing to the theoretical and empirical development of the theory have proposed slightly different definitions of the concept of social capital. This has weakened the theory as a whole, because it made it lack consistency. Moreover, there is no unitary, agreed upon, tested measure of social capital. This creates difficulty in comparing across empirical studies of social capital.

Some scholars have emphasized the 'dark side' of social capital, thus showing that "sociability cuts both ways" (Portes 1998: 18). Mafia families, prostitution and gambling rings, and youth gangs are extreme examples of the negative use of sociability (Portes 1998). However, there are other limiting effects of social capital. Li draws attention to the fact that the value of an individual's social capital depends on the 'quality' of their individual network. In Li's (2004: 175) words, "social capital has been promoted as a universal virtue, but in fact its

effectiveness is determined by the class-based resources of the group to which individuals are connected”.

Despite its limitations, social capital theory is an important framework in immigration research, as it is relevant to understand the effect of kin and co-ethnic support networks on the economic performance of immigrants, especially newcomers. In a study on the impact of human and social capital on refugees’ quality of employment, Lamba (2003) finds that occupation and education are minor but important determinants of refugees’ quality of employment. She suggests that in trying to compensate for the low value of their human capital, refugees turn to their social networks. However, she also shows that “while family and ethnic-group ties can aid refugees in their employment adjustment, these ties may not be able to compensate for refugees’ downward occupational mobility” (Lamba 2003: 60), and thus suggests that while social capital is a relevant determinant of immigrants’ economic performance, there are other structural determinants that need be taken into account as well.

2.3 Screening Hypothesis

Screening perspective introduces the “controversy over the degree to which education creates credentials vs. skills” (Osberg 1981: 130). According to human capital theory, earnings increase with the level of education because higher education brings about knowledge, which increases work productivity (Marginson 1997). Screening perspective acknowledges the relationship between education level and productivity, but argues that this relationship is not explained entirely by the knowledge obtained through education. Instead, educational credentials are

believed to be a “convoluted and expensive way of providing employers with a free selection service helping them to identify abilities that have been underlying for a long time” (Little 2003: 440). In other words, education is simply a screening device used during the employment process, and acts as a surrogate for individual productivity (Marginson 1997). Furthermore, education is assessed not only in terms of the highest level of schooling attained, but also in terms of the country of education or the educational institution attended. Berg (1970: 12) brings evidence to this hypothesis, and shows that “according to managers in private enterprise, educational achievements have been taken as evidence of self-discipline and potential for promotion. Moreover, trainability is presumed to correlate with educational achievement, as are productivity, personality – important in many jobs – and adaptability”. This shows that during the employment process the emphasis is more on credentials, grades, or reference letters, and less on skills.

Linking screening hypothesis to the dual labour market theory, Skinner (1995: 63) suggests that “the ever rising demand for formal educational credentials may in fact serve as a new mechanism for racial discrimination” and social inequality. He challenges the direct link between the educational credentials required during the employment process for many entry-level positions and the actual knowledge and skills required in order to perform the respective job. Over the past four decades, the level of education required to do even simple jobs has increased even though the job duties have not changed very much. Skinner is concerned over the fact that black males are most susceptible to be affected by the high demand of formal educational credentials.

Screening hypothesis has an important application to immigration literature when referring to foreign credentials. The theory claims that education is valued in the labour market for the 'label' that it provides, and not for the knowledge obtained in the educational system. This could explain why foreign credentials are less valued in the labour market: it is the 'label' of a Canadian credential, and not the knowledge of an educational degree that is valued in the labour market. Moreover, as this analysis shows, the value of a foreign degree varies depending on the country where the degree was obtained. This can also apply to the high value some employers place on Canadian work experience, which is just another way of screening out otherwise qualified individuals.

Screening hypothesis challenges the human capital theorists' practice of measuring education by years of schooling only and thus assuming that education is a continuous variable: "apart from distinguishing in some instances among levels of schooling, they do not usually differentiate education by type or quality – that is, professional *versus* vocational education, or education in prosperous suburban schools compared with that in the schools of poverty-ridden inner-city areas" (Berg 1970: 25). In this study, education is measured by three variables: the number of years of schooling, the origin of education, and the field of specialization. This endeavor acknowledges that education "has qualitative as well as quantitative aspects" (Laroche and Merette 1999: 89), and will test this assumption of the screening hypothesis.

2.4 Labour Market Segmentation Theories

Human capital theory claims that the transfer of knowledge from education to work explains the higher returns to educated labour. Screening hypothesis explains the same relationship by claiming that education credentials act as screening devices in the employment process. However, neither theory "explained institutional factors in the labour markets, such as vertical segmentation along class, gender and national-cultural lines, or collective effects on earnings" (Marginson 1997: 109). Labour market segmentation theories represent a collection of theoretical and research approaches that address this gap. What clearly differentiates human capital theory and labour market segmentation theories is their notion of labour market. While the former regards labour market as the place where individuals bid for jobs based on their skills, the latter claims that there is no unitary labour market, but various labour market segments.

Dual labour market theories postulate the existence of two relatively separate segments. I briefly outline the major points here. The primary labour market is characterized by "jobs [that] are relatively well paid, with good fringe benefits, relatively pleasant working conditions, employment security and clearly defined grievance procedures and work discipline regulations" (Osberg 1981: 133). In contrast, the secondary labour market is represented by jobs that are "typically short term, unstable, with low pay, poor working conditions, arbitrary work discipline and few fringe benefits" (Osberg 1981: 133). In other words, it is the distinction between 'good' and 'bad' jobs. While some people might voluntarily take jobs in the secondary labour market (i.e. students, housewives, temporary

migrant workers, new immigrants), others are forced into it due to “sexual or racial discrimination, the lack of educational credentials, unstable prior work history, a criminal record or an ‘irregular’ immigration status” (Osberg 1981: 134). Consequently, there is a higher concentration of certain groups such as women, visible minorities, immigrants, and other minorities in the secondary labour market.

The mobility between the two labour market segments is confined, to the extent that “economic growth, human capital development, or even full-employment policies that rely largely on private-sector job creation will not suffice to lift secondary sector workers into the primary sector” (Skinner 1995: 49). The focus of dual labour market theories are the barriers that limit access for many qualified individuals into the primary labour market, and the ability of participants from the advantaged segment to maintain their position (Krahn and Lowe 2002). Skinner’s (1995) literature review provides arguments for an explanation of the labour market experience of black males in the United States based on dual labour market theory. He concludes “that there are powerful barriers to mobility for poorly educated black workers in the secondary sector that may not be breached by human capital investment alone” (Skinner 1995: 62). In the Canadian context, Hiebert (1999: 364) provides “considerable evidence of labor market segmentation” in Montreal, Toronto, and Vancouver, along the lines of gender, ethnicity, and immigrant status.

Another labour market segmentation theory postulates the existence of labour market shelters. Discussing the term, Freedman (1976: 133) states that

'shelters' implies "retreat from competition and the sum of arrangements that give workers strong claims to their jobs. 'Shelter' also signifies a search for protection against adversity and the mitigation of the effects of unemployment, disability, illness and old age". Labour market shelters take the form of firm internal labour markets (i.e. unions) and occupational internal labour markets (i.e. professional organizations) (Ashton 1986). Their roles are to improve job and income security for their members, to meet the government legislation that requires that certain tasks be completed by certified trades (for public safety reasons), and to restrict access to these organizations (Krahn and Lowe 2002). The focus of labour market shelters theory is the ability of unions and professional organizations of restricting access to their organizations. In contrast, human capital theory acknowledges professional associations as obstacles to the investment in human capital, but not as labour market imperfections (Schultz 1971). For immigrants, these labour market shelters may prevent entry into certain professions or push them into secondary labour markets.

When referring to non-regulated occupations, screening hypothesis might explain some of the devaluation of foreign credentials in the Canadian labour market. At the same time, labour market shelters theory draws attention to the devaluation and/or lack of recognition of foreign credentials by professional organizations, which applies to regulated professions.

Another labour market segmentation theory relevant to this study is split market theory, defined as a "'class' theory of race and ethnicity" (Bonacich 1979: 17). The theory, developed by Bonacich in the 1970s, states that a split labour

market includes three classes: capital, high-priced labour, and cheap labour. The basic dynamic between these classes is that capital always prefers to hire cheap labour to high priced labour due to higher profits obtained from the exploitation of cheap labour. High priced labour tries to protect itself from the initiative or threat of displacement imposed by capital. Consequently to the actions of high priced labour, the cheap labour group can be either excluded from the society altogether or kept in a subordinate position.

Split labour markets can fall along various lines, such as race, immigrant status, or sex, and thus result in racism, discrimination against immigrants, and sexism. Bonacich (1979: 34) applies the theory to explain racial and ethnical antagonism and states that "the 'race' question is really a class question in that racially oppressed groups typically mark 'cheap labour'". The assumption is that this antagonism has no basis in the biological and cultural differences existent between the various groups. Instead these conflicts are the result of the historical process "rooted in differences in the price of labor" (Bonacich 1979: 19). In the regions that register or have registered racial antagonism, historically whites' labour has been highly priced, while non-whites' labour has been less valued. Interested to maximize their profits, capital has tried to hire non-whites. As a reaction to this threat, whites have created various mechanisms to protect themselves, from subordination (i.e. racism in the United States South) to exclusion (i.e. the exclusion of Japanese Americans from the Pacific coast of the United States).

Split labour market theory has an important application to migrant labour, as it offers an explanation to the devaluation or lack of recognition of foreign degrees by professional associations. Bonacich (1979: 51) outlines the situation of Asian health professionals in the 1970s and states that "there seems to be emerging a split labor market at the professional level, with highly skilled Asian immigrants playing a role that is not dissimilar to the role played a century ago by unskilled immigrant labor". In other words, there are two labour markets, one in which the Canadian-born work for high wages, and another in which foreign-trained migrants work for lower wages. They may do the same work, but are remunerated unequally.

The difficulties of labour market segmentation theories, which also make empirical testing problematic, are identifying labor market segments, measuring the barriers between them, and distinguishing their effects from other possible explanations, such as discrimination (Skinner 1995). Thus, it is either employment instability, control over own working time, or job security, which distinguishes between 'good' and 'bad' jobs (Osberg 1981). Similarly, scholars talk about the segmentation of jobs, of occupations, of industries, or of establishments. However, despite their limitations, labour market segmentation theories mark an important opposition to human capital theory, by drawing attention to the imperfections of the labour markets, and emphasizing the constraints individuals face, rather than their choices. They bring a much-needed structural focus to theories of earnings inequality. The following section outlines other problems with human capital theory.

2.5 Problems of Human Capital Theory

Social capital theory, screening hypothesis, and labour market segmentation theories emphasize some of the problems of human capital theory. Social capital theory criticizes human capital theory's assumption of a meritocratic labour market, of equality of opportunity to education, and of equality to information about jobs. Screening hypothesis claims that education acts as a screening device rather than as a source of knowledge that increases work productivity. This theory also shows that in assessing education, employers value the level of schooling attained, but also the country of education and/or the educational institution attended. Labour market segmentation theories question the idea of a single competitive, free labour market where individuals compete for jobs based on their human capital, and focus instead on the discrimination existent in the labour market.

A generalized critique of human capital theory is its focus on the supply side of the labour market, while ignoring the demand side (Krahn and Lowe 2002, McBride 2000, Salamon 1991). The theory claims that economic performance is all about the individual choice to invest in human capital, and minimizes the constraints to make this choice. This is an idealized notion of a competitive labour market, which ignores the "discrimination that occurs prior to entry into the labour market and which is subsequently reinforced *in* the labour market" (McBride 2000: 173). Human capital theory acknowledges discrimination and explains the immigrant status, gender, race, and class-based income variance by the mediating effect of education, thus minimizing the influence of these

characteristics (Baptiste 2001, Schultz 1971). However, the theory itself tends to ignore the various forms of discrimination and is powerless to explain any observed differences by gender, race, social class, or immigrant status.

Some researchers claim that “many of the empirical relationships posited by the theory do not hold” (McBride 2000: 173). For example, Marginson (1997) suggests that human capital theory ignores the effects of motivation on productivity, as people who enjoy their work are more productive than those who do not. There is also a lack of evidence of the links between education and productivity, and between earnings and productivity. The dataset used in the present study does not include information on work motivation or productivity. Consequently, these limitations need to be taken into account when interpreting the results.

Moving now from theory to research, the next section reviews the literature on immigration, with focus on Canadian research.

2.6 Literature Review

The findings of this study have implications to a number of debates in Canadian immigration research. It addresses the issues of immigrants’ assimilation, human capital, foreign credential recognition, and discrimination in the labour market. In this section I discuss some of the research fueling these debates.

2.6.1 Immigrants and the assimilation debate

One of the main concerns regarding immigrants is their ability to assimilate into the Canadian labour market. In trying to measure this, researchers have distinguished between entry effects, assimilation effects, and cohort effects. The

entry effect represents the initial earnings gap experienced by immigrants coming to Canada, compared to the earnings of Canadian-born. The assimilation effect consists of the amount of time necessary to catch-up with the earnings of native-born and thus overcome the initial earnings gap. The cohort effect measures the difference in earnings between various immigrant cohorts, namely between immigrants arriving to Canada at different moments in time. Hum and Simpson (2004) review the literature on the economic integration of Canadian immigrants and indicate that there is a general consensus that immigrants register a negative entry effect. This means it is expected that upon their arrival to Canada, immigrants receive lower earnings than Canadian-born, because, among other things, they are not familiarized with the labour market and they might not be proficient in English and/or French.

Hum and Simpson (2004) also conclude that immigrants' ability to catch-up with the earnings of the native-born is subject to debate. A number of cross-sectional studies suggest that over time immigrants' earnings converge with those of Canadian-born (McDonald and Worswick 1998). Borjas (1985) has criticized the results of studies on economic integration of immigrants conducted with cross-sectional data, because they cannot distinguish between assimilation and cohort effects, which can overinflate the assimilation effect. Instead, Borjas (1985) suggests using quasi-panel data, consisting of a series of census cross-sections, which allows separating cohort effects from assimilation effects, and thus comparing between immigrant cohorts and between non-immigrants and immigrants from each cohort. Borjas (1988) applies this method to the Canadian

context and suggests that compared to earlier immigrant cohorts, more recent cohorts have increasing difficulties in adapting to the Canadian labour market, because their earnings will not converge in time with those of their native-born counterparts. Various Canadian researchers have applied Borjas' model to more recent census data and their results are consistent with Borjas' finding that recent immigrants' earnings will not converge with those of non-immigrants (Baker and Benjamin 1994; Bloom, Grenier and Gunderson 1995; Frenette and Morissette 2003).

However, Grant (1999) uses quasi-panel data and shows that for immigrants arriving in the 1980s, entry earnings are similar to those of earlier immigrants and the assimilation rates are increasing. Moreover, Li (2003a) uses longitudinal data for immigrants who landed in Canada between 1980 and 1996 and shows that while recent immigrant cohorts earned less initially than earlier cohorts, they catch-up faster with the earnings of native-born. These findings are consistent for all classes of admission and for both males and females. As a result, the data on immigrants' ability to catch-up to the income of Canadian-born is inconclusive.

2.6.2 Immigrants' human capital debate

More recent studies using quasi-panel data have suggested that recent immigrants register decreasing assimilation and cohort effects, meaning they have a lower economic performance over time compared to both non-immigrants and earlier immigrant cohorts (Baker and Benjamin 1994; Bloom, Grenier and Gunderson 1995; Borjas 1985, 1988; Frenette and Morissette 2003). In order to explain this

finding, some researchers advanced the explanation that the 'quality' of recent immigrants has decreased compared to that of earlier immigrants. This touches on the issue of immigrants' human capital and constitutes the subject of another debate.

Some scholars claim that immigrants' human capital has been decreasing in the last decades (Coulson and DeVoretz 1993) and explain it by changes in the immigration policy, such as the increase in the quotas of family and refugee sponsored immigrants. This explanation has been refuted by Wanner (2003), who shows that while selected immigrants have higher entry earnings than immigrants who are not accepted (i.e. refugees, family sponsored immigrants), their earnings still converge in time. deSilva (1997) similarly shows that the earnings of newcomers from different immigrant classes converge over time. Frenette and Morissette (2003: 15) provide evidence that the poorer economic performance of recent immigrants can be explained by "the declining labour outcomes of new labour market entrants". In other words, one of the reasons why recent immigrant cohorts have decreasing earnings is that the earnings of all new labour market entrants (foreign- and native-born) have been decreasing in the last decades. Another documented factor of the economic assimilation of immigrants constitutes the macroeconomic conditions encountered by newcomers upon arrival in Canada (Aydemir and Skuterud 2004, McDonald and Worswick 1998). Reitz (1998: 223) shows that immigrants' entry earnings is affected by "the structure of the host society's own mainstream institutions", namely its educational system, labour market (i.e. earnings inequality), and social welfare, and that these

institutions particularly influence racial minority immigrants. Therefore, these studies change the focus of the cause of immigrants' poor performance from the immigrant to the Canadian society and economy.

Some researchers have denied the claim of a decrease in immigrants' human capital in the last decades (Akbari 1999, Li 2003a). Akbari (1999) shows that in the period 1956 to 1994, immigrants' human capital has increased, because compared to earlier immigrants and Canadian-born, the proportion of recent immigrants with high-school education or less is lower and with university education is higher. Similarly, Li (2003a) documents that the human capital of recent immigrant cohorts, operationalized by the proportion of university degree holders, is higher and increases with time compared to the human capital of earlier immigrant cohorts. As a result, evidence suggests that there are other factors, such as labour market discrimination, which may negatively affect the income of immigrants, though again, this point is the subject of much debate.

2.6.3 Foreign credentials recognition debate

Another important issue in the immigration literature is whether or not there is a devaluation or lack of recognition of foreign education. Most Canadian research on the value of foreign credentials in the labour market has shown a lower economic return to foreign degrees than to domestic education. Some studies focus on university credentials, while others examine the value of foreign education in general.

McDade (1988) conducts the first government research on this issue and describes the barriers to credentials recognition for various professions and trades

throughout Canada. McDade is also one of the first researchers to point out the need for an objective mechanism of foreign credentials assessment at the federal level. deSilva (1992) conducts one of the first quantitative studies documenting the devaluation of foreign credentials and foreign experience. However, he assumes from the start that "because of higher quality, Canadian education and experience should command a premium over foreign education and experience" (deSilva 1992: 23). Despite this bias, deSilva (1992: 34) admits that "there is no way to tell, incidentally, whether that undervaluation represents prejudice against foreign educational credentials, ignorance of the true value of foreign credentials, or a genuinely lower usefulness of non-Canadian credentials in the Canadian labour market".

Further research has shown that the devaluation of foreign credentials particularly affects certain groups, such as women (Fagnan 1995) and visible minorities (Basran and Zong 1998, Rajagopal 1990). Fagnan (1995) shows that immigrant women generally reach earnings convergence with non-immigrant women, except in the case of professionals, of whom many cannot practice their professions due to the lack of recognition of their degrees. At the same time, Sorensen (1995) indicates that the strength of the match between field of post-secondary education and type of occupation for highly educated immigrant women is similar than for immigrant men and greater than for Canadian-born women. Sorensen (1995) interprets these results as evidence of fair assessment and valorization of post-secondary education in the Canadian labour market for immigrant women.

Rajagopal (1990) is one of the first researchers to bring awareness to the issue of the devaluation of foreign credentials for visible minorities. His study focuses on Indian immigrants living in Ontario and discusses the discrepancy between the high level of schooling of Indo-Canadians and their income level. He notes that 40 percent of Indo-Canadians have university-level qualifications, compared to only 20 percent for the overall population of Ontario. At the same time, their average incomes are "slightly lower compared to the total populations at an all-Ontario level, and substantially lower for Toronto" (Rajagopal 1990: 98). However, while Rajagopal does elaborate on these differences, he does not use a multivariate statistical model and thus does not control for other factors that have an impact on income. For this reason, his conclusion cannot be substantiated.

Basran and Zong (1998) conduct a survey in 1997 in Vancouver to examine how visible minority foreign-trained professionals perceive the credential problems and occupational disadvantages. While the sample is not random, their results suggest that "visible minority professional immigrants perceive that they face systemic barriers to their entry into their respective professions" (Basran and Zong 1998:16). As a result of these systemic barriers, newcomers experience difficulties in transferring their credentials and work experience into the Canadian labour market, difficulties that result in downward occupational mobility relative to the occupations they held in their country of origin.

More recent multivariate analyses of immigrants' economic performance similarly document the devaluation of foreign credentials for women and visible minorities (Li 2001, Pendakur 2000). Pendakur (2000) examines the influence of

origin of education on income for post-secondary education only and shows that foreign education is more problematic for visible minorities and especially for women.

Li (2001) draws similar conclusions from his study of the "market worth of immigrants' educational credentials". His study shows that native-born Canadian degree holders have the highest earnings, followed by immigrant Canadian degree holders and immigrant mixed education degree holders, who have comparable earnings; immigrant foreign degree holders have the lowest earnings. Li (2001: 32) also notes that "gender, racial origin, and foreign credentials tend to interact to produce complex outcomes for various groups of degree holders". He verifies this hypothesis and deals with the interaction by doing separate analyses for each of the groupings created by these indicators. He concludes that foreign credentials recognition is more of a problem for visible minorities, compared to white immigrants and native-born individuals.

deSilva (1997: 194) is "unable to conclude that educational qualifications obtained from Third World countries tend to be systematically undervalued to those acquired in such places as Europe and the United States". However, the population of his study consists only of short- and medium-term immigrant men and neglects those in Canada for a longer period of time. Similarly, Aydemir and Skuterud (2004: 17) find "little or no evidence that the returns to foreign education are responsible for the deterioration" of immigrants' entry earnings. The present study suggests that analyses of the value of foreign education for immigrants at an early stage of integration might be inconclusive.

I also want to make note of a study conducted by Adamuti-Trache and Sweet (2005), as it uses data from the 2002 Ethnic Diversity Survey. This study examines the effect of origin of education on earnings for post-secondary graduates only and shows that "the negotiation of credentials in the labour market is significantly determined by origin of education, level of education and field of study" (Adamuti-Trache and Sweet 2005: 194). Except for the study of Adamuti-Trache and Sweet (2005), none of the quantitative studies I consulted used a direct measure of the origin of education. Instead, these studies have derived this variable based on the number of years of schooling, age at immigration, and country of birth, because before the Ethnic Diversity Survey and the Longitudinal Survey of Immigrants to Canada, there has been a lack of large-scale data on this topic. As such, the present analysis represents one of the few quantitative studies using a direct measure of the origin of education.

While the above-mentioned studies have documented the devaluation of foreign education in the Canadian labour market, other issues require clarification. An important difficulty of foreign credentials research is answering the following question: is the devaluation of foreign education in Canada a form of discrimination against immigrants or the result of a lower 'quality' of foreign education? Wanner (1998: 37) finds "a substantial effect of level of development of country of origin on earnings returns to postsecondary education among immigrants educated abroad," thus suggesting that the devaluation of foreign degrees is due to its lower 'quality.' However, Wanner (1998: 37) admits that his results "do not rule out the possibility that some immigrants suffer a form of

exclusionary discrimination when their foreign credentials are devalued or ignored". Sweetman (2004) measures the 'quality' of a country's educational system by international test scores in math and science and shows that it moderates immigrants' returns to schooling in the Canadian labour market.

However, most sociological research interprets the documented devaluation of foreign education in the Canadian labour market as a form of discrimination. Battershill (1992: 252) discusses the systemic barriers to the entrance into Canadian medicine encountered by foreign medical graduates and interprets them as embodiment of how "one good principle, *equity*, was overcome by another good principle, *efficiency*". He exemplifies this with a 1987 legal action of a group of foreign-trained physicians who claimed the government of Ontario was discriminating against them. The Supreme Court of Ontario ruled that the policy was discriminatory, but reasonable, based on the "known versus the unknown school quality" reasoning (Battershill 1992: 250). Bauder (2003: 699) suggests "professional associations and the state actively exclude immigrant labour from the most highly desired occupations in order to reserve these occupations for Canadian-born and Canadian-educated workers." His findings are based on interviews with institutional administrators and employers in Vancouver who work with immigrants from South Asia and the former Yugoslavia. While this issue remains subject to debate, documenting whether foreign credentials are devalued in the Canadian labour market because of their perceived or actual low 'quality' is difficult to assess in current quantitative studies.

2.6.4. Immigrants' discrimination debate

The fact that females earn significantly less than men, after controlling for other variables affecting income, is one of the most consistent findings in analyses of income regardless of immigrant status. Consequently, most studies acknowledge the strong effect of gender on economic performance and control for it.

Moreover, it is documented that gender interacts with immigrant status (Li 2000). In order to deal with this interaction, some researchers do separate analyses for males and females and show that gender affects immigrants' earnings (Li 2003a, 2001, 2000). Moreover, most of these researchers find that being immigrant and female yields a double-penalty on earnings. As a result, immigrant women have the lowest earnings compared to native-born males or females and to immigrant males (Li 2000).

Boyd (1985) compares the occupational status of males and females and shows that "immigrant women in the full-time paid labour force have net occupational statuses which are not only below those of native-born women but also are lower than those observed for immigrant males in the same birthplace categories" (1985: 439). Wilkinson et al. (2006) restrict their analysis to women and show that the employment income of immigrant women increases with time in Canada and the United States, resulting in similar income levels for long-term immigrant women (more than 10 years) and native-born women. However, short-term (less than 3 years) and medium-term (between 3 and 10 years) immigrant women have lower earnings than the two previous groups. Slightly different results

are obtained by Shamsuddin (1998: 1198), who claims "females were mainly subject to discrimination by gender rather than by birthplace".

Unlike in the case of gender discrimination, whether there is discrimination based on ethnicity/ race in the Canadian labour market is more controversial. In order to answer this question, researchers include various indicators in the analysis of economic performance (i.e. ethnic group, country of birth, area of origin, visible minority status). It is not to say that all these indicators measure the same concept, but they are strongly correlated.

Some researchers claim that visible minorities are not discriminated against in Canada (deSilva 1992, Wanner 1998). deSilva (1992: 37) claims "there is no significant discrimination against immigrants in general. ... There is no detectable general tendency to discriminate against immigrants originating from Third World regions" and he interprets this finding as proof of the lack of discrimination against visible minorities. Wanner (1998) tested the hypothesis that in the Canadian labour market there is economic discrimination in terms of returns to schooling by country of birth. His analysis shows that immigrants educated outside Canada receive lower returns to their education in the Canadian labour market compared to native-born individuals, and that these returns "vary systematically with country of birth" (Wanner 1998: 37). At the same time, the returns to human capital received by immigrants educated in Canada are similar to those received by the native-born population. Based on these results, Wanner (1998: 37) concludes: "I find little support for the argument that widespread prejudice against

ethnic minorities who have immigrated to Canada has led to economic discrimination”.

Despite these mixed findings, there is support for claiming discrimination based on ethnicity/ race in the Canadian labour market (Boyd 1985; Chiswick and Miller 2001; Kazemipur and Halli 2001a; Li 2000, 2001, 2003a). In a study on the 1973 male labour force, Boyd (1985: 431) concludes “there appear to be occupational inequalities between foreign-born males by country of birth which cannot be attributed to differentials in social origins, education, place of residence, or duration spent in Canada”. Her analysis showed that immigrants born in the United States, the United Kingdom, or Northern or Western European countries enjoy an occupational advantage compared to immigrants born in Southern and Eastern European countries.

With the removal of the preferential country of origin clause within Canada’s immigration policy, the country of origin of recent immigrants has changed. Until 1967, immigrants were selected based on their country of origin. Since then, a ‘point system’ was introduced in order to select immigrants coming to Canada (Abu-Laban and Gabriel 2002, Hawkins 1988). As a result, immigrants from ‘non-traditional’ sources such as Asia, Africa or South America have increased, while immigrants from ‘traditional’ sources such as Western Europe or the United States have decreased. Thus, information about one’s country of origin and/or area of birth now indirectly measures the individual’s visible minority status.

In an analysis of recent immigrants' ability to catch up with the earnings of earlier cohorts of immigrants, Li (2003a) controls for the immigrants' area of origin. His analysis shows that, compared to immigrants from Western Europe, male immigrants from all other areas took longer to catch up, except for women from the United States. In a study using the 'visible minority status' indicator, Kazemipur and Halli (2001a) show that visible minorities are over-represented among the poor. Among the non-immigrant population, this observation is valid only for Blacks, while among the immigrant population, all visible minorities are over-represented among the poor, with Blacks being the most disadvantaged. This also suggests that visible minority status interacts with immigrant status.

Li (2000, 2001) brings more proof to the interaction between visible minority status and immigrant status. In order to deal with this interaction, he performs separate analyses for visible minorities and white individuals. He shows that after immigrant women (white or visible minorities), immigrant visible minority men had the lowest earnings, except for those in non-CMAs (Li 2000). Similarly, in another study, Li (2001) suggests that compared to white male Canadians, foreign credentials have a more severe net adverse effect on visible-minority men. Similarly, foreign credentials also disadvantage visible minority women more than white female Canadians. Thus, he concludes that "joint negative effects of immigrant status and foreign degree are most severe for visible minority women and men, and less so for white women and men" (Li 2001: 32).

Pendakur (2000) performs an analysis of the usefulness of using visible minority status as a variable, in order to assess whether this category obscures

large differences between various visible minority groups. He (Pendakur 2000: 191) concludes that "visible minority is a useful category for analysing earnings, but that it does simplify away some important variations in economic success" and finds that visible minorities earn significantly less than native-born white workers in Canada after controlling for occupation, industry, education, potential experience, CMA, official language knowledge, and household type.

Chiswick and Miller (2001) develop a model that permits a better understanding of the mechanisms of the influence of birthplace on official languages proficiency and thus – indirectly – on economic performance. Their analysis provides support for a model that measures birthplace by the following variables: geographic distance between the country of origin and Canada, linguistic distance between the immigrants' mother tongue and English or French, proportion of individuals living in the same region as the immigrant who speak his mother tongue, refugee status, and immigrating from a former colony of an English or French-speaking country. Chiswick and Miller (2001) show that the use and knowledge of official languages in Canada is positively affected by geographic distance and whether the immigrant originates from a former colony of an English or French-speaking country, and negatively affected by linguistic distance, proportion of mother tongue users in the area of residence, and refugee status. This model opens the door to a more complex understanding of how immigrants' places of birth influence their official languages ability and their economic performance.

2.6.5 Predictors of economic performance

When analyzing the economic performance of immigrants, researchers use various indicators. However, many of them use the same predictors. Some of the most commonly used predictors are those that intend to measure individual's human capital. Thus, most researchers control for level of education, work experience and/or official languages proficiency. Research has documented that education, Canadian work experience, and official languages proficiency have strong effects on economic performance, and these effects differ depending on individual's immigrant status.

Supporting human capital theory, research has documented that a high level of education yields a high level of earnings (Li 2000). However, this relationship seems to be moderated by immigrant status, as education "exerts a greater influence on the occupational outcomes of native-born males compared to foreign-born males in the 1973 labour force" (Boyd 1985: 440). Boyd's results are confirmed by more recent studies. Kazemipur and Halli (2001a, 2001b) show that education decreases the odds of poverty, but more in favour of the Canadian-born population. They also suggest that between 1991 and 1996, the effect of education in alleviating poverty has risen for the whole population and for the native-born population, but has remained the same for the immigrant population.

Results are similar when researchers distinguish between university degree holders and those with lower credentials and training, as education is a strong predictor of earnings for both men and women (Li 2003a). The same study also suggests that the effect of human capital tends to be more pronounced among

immigrants with different levels of human capital in earlier cohorts. Among degree holders, having an advanced degree has a net earnings advantage over those with only a bachelor's degree (Li 2001).

Some studies have shown that while earnings depend on the level of education attained by an individual, the field of education should also be taken into account (Li 2001, Adamuti-Trache and Sweet 2005). Li (2001) shows based on the 1996 Census data, that individuals in health fields register the largest earnings advantage, and those in arts, humanities, and related fields have the largest disadvantage. Adamuti-Trache and Sweet (2005) similarly suggest based on the 2002 Ethnic Diversity Survey data that immigrants specialized in applied fields of study register higher earnings than those in liberal arts.

Another form of human capital, work experience, is positively correlated with earnings (Li 2000). For degree holders, each year of work experience brings an increment in net earnings (Li 2001). As researchers have discussed the devaluation of foreign work experience in the Canadian labour market (Basran and Zong 1998), some authors controlled for immigrants' Canadian work experience. Studies have shown that Canadian work experience increases immigrants' net earnings (Li 2000). Similar results were obtained for the foreign degree holder population (Li 2001).

Research has documented that having official languages skills increases economic performance. However, it matters whether immigrants have knowledge of English or of French. Li (2001, 2000) shows that knowledge of both official languages or of English ensures average earnings, whereas knowledge of only

French, and especially of neither official language, affects earnings negatively. Similarly, Kazemipur and Halli (2001a, 2001b) suggest that for native-born individuals knowledge of either English or French decreases their risks for experiencing poverty; for foreign-born individuals, their risks for experiencing poverty decrease if they know only English.

Some researchers have analyzed official languages proficiency as the main independent variable for economic performance. For example, Boyd (1999) showed that lower levels of languages proficiency are correlated with low levels of schooling, low labour force participation rates, high unemployment rates, high concentration in processing and production occupations, in the 'goods' sector and in low-skill service industries, low skill level of occupations and low wages. In her analysis, Boyd controlled for a number of variables, including age, CMA of residence, education and number of years lived in Canada for the foreign-born. For income, she also controlled for occupational skill, industrial location, number of weeks worked, and full-time/part-time profiles. Looking at the interaction between official languages proficiency, immigrant status, gender and visible minority status, her analysis shows that foreign-born men who are not members of visible minority groups and who are highly proficient in English and/or French have "the highest earnings of all groups, significantly higher than earnings that would be expected for the Canadian-born, non-visible minority, high language proficiency men" (Boyd 1999: 303). These results offer further insight on the relevance of official languages proficiency on immigrants' economic performance.

Therefore, much of the Canadian research has documented that human capital characteristics such as education, work experience and official languages proficiency have a strong impact on economic performance, and this impact differs depending on the source country of the labour market participant.

While most studies on immigrants' economic performance examine their human capital endowments, some also focus on their social capital, whether it is familial or extra-familial. Putnam (2000), in his book examining the collective form of social capital, proposes a social capital index. The index measures the level of participation in community organizational life, public affairs, and community volunteerism, as well as the level of informal sociability and social trust. The present study uses the individual form of social capital. This extra-familial social capital, namely the social network is measured by whether or not individuals participate in various group activities. Similarly, the study examines the individual's familial social capital, whose effect varies depending on the socio-economic position of his family (Li 2004), which can be measured indirectly by the level of education of its members. Boyd (1985: 401) studies the effect of parental education on occupational attainment and shows that "compared to the native-born Canadians, the educational skills and familial resources of immigrants have less effect on their occupational attainment". Given that the purpose is not to test social capital, but to test human capital theory, the presence of other forms of social capital can be left to a future study.

Controlling for year of immigration when analyzing the economic performance of immigrants is a measure of both the length of time spent in

Canada and the particularities of the period of time when the individual immigrated. Kazemipur and Halli (2001a) have documented that period of immigration affects the odds of poverty. They show that compared to the 1960s immigrant cohort, the odds of poverty consistently rise for the immigrants arriving since then. In another study that controls for period of immigration, Li (2003a) indicates that compared to the average earnings of Canadians, earnings of immigrants who came in the 1990s were lower than the earnings of immigrants who came in the 1980s. In the present study, period of immigration is a main independent variable, and separate analyses are performed for short- and medium-term, and long-term immigrants, which are documented integration and settlement stages (Wilkinson et al. 2006). However, because this study is conducted on cross-sectional data, the stages of integration represent a measure of cohort effects only, and do not measure assimilation effects as well (Borjas 1985).

Many studies have documented the relevance of place of residence as a predictor of economic performance, with urban residency being associated with higher incomes compared to rural residency. Thus, research shows that net earnings increase with size of place of residence (Boyd 1985, Li 2001, Reitz 1998). Moreover, the immigrant population is highly concentrated in urban areas, with Toronto, Vancouver and Montreal receiving more than 70 percent of the immigrants arriving to Canada (Hum and Simpson 2004). Hiebert (1999: 364) examines the gender, ethnic, and immigrant occupational segmentation in Montreal, Toronto, and Vancouver, and shows that "geographic differences

appear to reinforce rather than undermine gender and ethnic patterns". This suggests that the choice made in the present study to treat residents of the three largest Canadian cities as a homogenous group is a reasonable one. Similarly, some researchers also control for the earnings differential existing between Canadian provinces (deSilva 1992, Wilkinson et al. 2006).

Earnings also vary depending on occupation, industry of work, number of weeks worked per year and number of hours worked per week. Occupational status is sometimes used as a measure of economic performance, and thus as a dependent variable (Boyd 1999, 1985). Other researchers analyze occupation as a predictor of income and show that high-skill occupations yield higher earnings compared to low-skill occupations (Li 2001, 2000). Krahn and Lowe (2002) discuss how income and occupational distribution vary depending on industry of work and gender. Industry of work is used both as a measure of economic performance (Boyd 1999), and as a predictor of earnings (Li 2001, 2000). Research also shows that full-time work yields higher income compared to part-time work (Kazemipur and Halli 2001a, 2001b; Li 2001), and that individuals that work more weeks per year earn more than those who work fewer weeks (Li 2001).

Some studies have documented that age affects economic performance, with older individuals having more success in the labour market compared to younger individuals. For example, Kamzemipur and Halli (2001a, 2001b) show that age decreases the odds of poverty. For immigrants, age at immigration affects earnings as well, but in the opposite direction. Thus, the odds of poverty are positively correlated with age at immigration (Kamzemipur and Halli 2001a).

Moreover, Li (2003a) shows that younger working-age immigrants catch up faster with the earnings of native-born individuals compared to the older immigrants.

deSilva (1997: 197) uses the Longitudinal Immigration Database and goes as far as to claim that "age at landing is probably the single most important observable determinant of an immigrant's ultimate success".

This section shows the abundance of research in the sphere of immigration and the various debates about immigrants' assimilation, human capital, foreign credentials recognition and discrimination. It also discusses some of the important predictors of economic performance. In the last section of this chapter, I examine the research questions of the present study and how they relate to the theory and research discussed above.

2.7 Discussion of research questions

The research questions addressed in the present study are particularly important for human capital theory, and its application to explaining immigrants' economic integration. Human capital theory explains income variance by difference in levels of education, among other human capital characteristics. The present study assesses the impact of education on income. A strong positive effect of education on income offers support to human capital theory, while a strong negative effect questions it. At the same time, human capital theory explains the impact of various individual characteristics on economic success in the labour market by the effect that these characteristics have on education. In other words, human capital theory assumes that education explains away the relationship between these characteristics and various economic performance indicators. This study focuses

on the relationship between education, income, and origin of degree. A significant interaction term of education and origin of degree suggests that origin of degree moderates the relationship between education and income, meaning that Canadian degree holders receive higher returns than foreign-degree holders for the same level of education attained, which would question human capital theory. However, an insignificant interaction term 'education x origin of degree' offers support to human capital theory.

An important contribution of this study is performing separate analyses for short- and medium-term immigrants and long-term immigrants, which separates between immigrants at different stages of integration. The present study expects that education yield different income levels depending on the period of immigration. In this case, period of immigration moderates the relationship between education and income, which questions human capital theory. However, a similar impact of education on income for SMT and LT immigrants reinforces human capital theory.

Understanding the effect of education on immigrants' economic integration is particularly important in terms of the current 'point system' used to select skilled workers to Canada. The analysis will be able to show whether or not immigrants have similar returns to their education as Canadian-born individuals, and whether this reward is conditioned by where education was obtained. Results showing devaluation of foreign credentials might suggest that this is nothing but another form of discrimination against immigrants, especially as it is directed to visible minorities.

As explained earlier in the chapter, previous research has documented that foreign education yields a disadvantage in the Canadian labour market compared to domestic education. Moreover, this is shown to be particularly relevant for visible minorities. The present study confirms these results and also suggests that the period of time since immigration is also important in terms of understanding and studying the devaluation of foreign credentials. While some researchers have performed separate analyses for immigrants at various stages of integration, this has not been done in studying the value of foreign credentials.

Chapter Three: Source of Data and Methodology

In this chapter I discuss the data and methodology used, namely the sampling method, the description of the sample, the operationalization of variables, and the data analysis technique.

3.1 Sampling method

The analysis for this study uses the data set based on the Ethnic Diversity Survey. The EDS is a post-censal survey and its sampling frame consists of people who had answered the long questionnaire in the 2001 Census. The EDS target population includes persons aged 15 and older living in private dwellings in the ten provinces. This population includes Canadian citizens, landed immigrants and temporary residents such as students, workers, refugee status claimants and their family members².

The EDS is a probabilistic survey that uses a random sample to select respondents. The survey uses a two-phase stratified sampling design. The first phase is a one out of five selection of households in Canada that receive the long questionnaire of the 2001 Census. The second phase consists of a sub-sample of phase one respondents population based on their responses to questions related to ethnic origin, place of birth and birthplace of parents. To achieve an ethnically diverse sample, the target population is divided among a series of strata, based on ethnicity and generational status. The responses to the Census ethnic origin question are categorized in two groups: CBFA (where C=Canadian, B=British

² The groups excluded from the target population are: persons under the age of 15; persons living in collective dwellings; Indian reserves; persons who declared an Aboriginal ethnic origin or Aboriginal identity on the 2001 Census; the territories and remote areas.

Isles, F=French, A=American, Australian and/or New-Zealander) and non-CBFA, the second group being further subdivided into European origins and non-European origins, and also depending on whether or not the response includes a Canadian origin. The questions on birthplace and birthplace of parents are used to establish the respondent's generational status, where first generation consists of those born outside Canada, second generation of those born in Canada with at least one parent born outside Canada, and third generation of those born in Canada to two Canadian-born parents. Persons with non-Canadian, non-British, and non-French origins are oversampled, representing two-thirds of the database. A systematic sample is selected in each stratum to ensure the geographical distribution of respondents; as a result, the EDS sample consists of 42,476 cases³.

This sampling method has its strengths, as it ensures an ethnically diverse sample geographically distributed similar to the Canadian population. It also results in population sub-strata that are large enough to make good statistical comparisons. However, the sample selection also has disadvantages. Entire segments of the population are excluded, such as persons under the age of 15, Aboriginal Peoples, persons living in collective dwellings, Indian reserves, or in the territories and remote areas. Having a two-phase stratified sampling design also increases the sampling error. For example, oversampling persons with non-Canadian, non-British, non-French origins results in a sample non-representative of the Canadian population. To take into account some of these errors, the results

³ Total non-response represents 24.4 percent of the initial sample, which includes persons who refused to participate in the survey and those who participated, but who were classified as being outside the scope of the survey. The response rate by stratum varies between 72 and 80 percent.

of the present data analysis are weighted by the standardized EDS weight variable.

Respondents were contacted by telephone, with the average interview length of between 35 and 45 minutes. Interviews were conducted only with pre-selected persons and were administered in English, French, Mandarin, Cantonese, Italian, Punjabi, Portuguese, Vietnamese, or Spanish. Telephone surveys offer, among other things, the advantage of conducting large surveys in a short period of time. However, telephone surveys also have limitations, such as omitting individuals without telephones, a higher non-response rate than personal interviews, questionnaire constraints (i.e. limits on response alternatives, use of visual aids, interviewer observations), and difficulties in the case of personal or sensitive questions (Fowler 2002: 72). Similarly, the option of conducting the interview in one of nine different languages was necessary for a survey whose goal was to contact people of various ethnicities. Nonetheless, translations might also increase the error associated with the construction of the questionnaire.

EDS is a Statistics Canada survey, and ethical guidelines are strictly followed by this organization. All EDS respondents are voluntary participants, aware that their cooperation is voluntary⁴ and that their failure to participate would not have any negative consequences. However, certain questions are rather sensitive. For example, a series of questions inquire on the respondent's experience of discrimination, which may cause some to relive painful experiences.

⁴ The phase 1 of EDS, namely the 2001 Census, is not voluntary.

Interviewers were trained to deal with these situations, so that their questions do not result in any embarrassment or trauma on the part of the respondent.

3.2 Description of the sample

For the purpose of my study, the sample is restricted based on age, declared income, source of income, and province of residence. Thus, the sample is limited to respondents not residing in the Atlantic Provinces, between 25 and 64 years old, who have reported income, and for whom employment is a major source of income. These criteria are selected based on both practical and theoretical reasons⁵. Focusing the analysis on individuals who reported income and for whom employment is a major source of income is common practice when measuring economic performance, because the study is concerned with individuals who are active in the labour market (Boyd 1985; Li 2003). Similarly, young people (15 to 24 years old) may still be in school and may not be fully engaged in the labour force, while older people (65 years and older) may be retired. The Maritimes provinces are excluded from the analysis due to the very small number of immigrants in these regions. Between 1999 and 2005, approximately 1 percent of new immigrants have immigrated to these provinces (CIC 2006). As a result of these exclusions, the sample consists of 13,877 cases.

The sample is separated into two major subpopulations, based on immigrant status, measured by nativity: foreign-born individuals (3,733 cases) and Canadian-born individuals (10,143 cases). Hypothesizing that the economic

⁵ A percentage of 18.5 respondents had not reported an income (not asked, refused, did not know). Adding to that, 10 percent of respondents had reported no income. These individuals were excluded from the sample.

performance of immigrants depends of the stage of integration, immigrants are further subdivided by period of immigration. Given that the survey took place in 2002, the period of immigration is operationalized into 3 categories: short-term (arriving between 1999 to 2001 – 0 to 3 years), medium-term (immigrating between 1992 to 1998 – 4 to 10 years), and long-term (living in Canada since 1991 and before – more than 10 years). While the original intention was to perform separate analyses for short-, medium-, and long-term immigrants, the first two categories are collapsed into a single category, due to the low number of short-term immigrants in the sample (176 cases). As a result, I distinguish between short- and medium-term immigrants (800 cases) and long-term immigrants (2,919 cases). Separate analyses are performed for four populations: Canadian-born individuals, immigrants, short- and medium-term immigrants, and long-term immigrants. Given that Canadian-born respondents represent 10,143 cases, a random sample is drawn, thus limiting the native-born individuals' sample to 3,088 cases.

Caution is needed when interpreting the results. The generalizability of the sample is limited to the population consisting of employed 25 to 64 year olds not residing in the Atlantic Provinces. Hence, the findings of this study do not speak of the labour market outcomes of the youth, the seniors, or the Maritimes residents.

3.3 Operationalization of variables

Economic performance represents the dependent variable in this study and is measured by the reported income⁶, when employment is the main source of income. Because income is generally positively skewed, in many studies researchers choose to logarithmically transform it in order to deal with its normality problems (deSilva 1992, Li 2000, Wanner 2003). However, in the present study, after deleting the outliers skewing the distribution of income, normality problems are solved, rendering unnecessary any further transformation (see Table 3).

In this study, I identify education, work experience, and official languages proficiency as human capital predictors of earnings. Education represents the human capital characteristic of main interest, due to the focus on foreign credentials of this study and to the high value attributed to education during the immigration selection process. Moreover, ever since the first analyses on human capital, researchers have tested the theory by measuring the rate of return to education, among other reasons, due to the fact that unlike work experience and other work-related skills, education can be measured directly, by the number of years of schooling (Becker 1962).

⁶ Income is measured based on the answers EDS respondents provided to the question "What is your best estimate of your total personal income, before taxes and deductions, from all sources in the past 12 months?".

The EDS questioned respondents on their highest level of schooling⁷. Education measured as number of years of schooling is generally derived from highest level of education, by attributing to each level of education the number of years of schooling necessary to attain it. However, the EDS also includes the number of years of schooling as calculated by Statistics Canada based on the answers of EDS respondents to the 2001 Census of Canada. While I can derive years of schooling from the EDS highest level of schooling, because this variable is measured on a 7-category scale, I choose to use the Census years of schooling⁸. This measure has the advantage to be calculated based on a 21-category scale of the highest level of schooling as reported in the Census questionnaire, and thus is a more detailed measure of education⁹. Furthermore, it is an interval level variable, more suitable for quantitative analysis than the ordinal highest level of education variable (see Table 1).

Another important human capital variable is work experience. As very few surveys inquire on the actual work experience of a respondent, this variable is derived by assuming that people start school at the age of seven and start working after finishing school. One can argue that this operationalization makes

⁷ EDS 'highest level of schooling' is measured on a 1 to 7 scale, where 1 = Earned doctorate, Master's degree or degree in Medicine, Dentistry, Veterinary Medicine or Optometry, 2 = Bachelor's or undergraduate university degree, 3 = Diploma or certificate from college, CEGEP, nursing school, trade, technical or vocational school or business college, 4 = Some university, 5 = Some college, CEGEP, nursing school, trade, technical or vocational school or business college, 6 = High school diploma, 7 = Less than a high school diploma (includes no schooling).

⁸ The Census number of years of schooling is normally distributed (see Table 3).

⁹ In making this choice I am aware of the time difference between EDS and the Census: EDS was conducted in spring-summer 2002 and the Census took place in May 2001. Therefore, changes in the educational status of the respondents might have occurred between the Census and EDS. However, given the small number of students in this study, the possibility is small.

Table 1. Operationalization of dependent and independent variables

Variable	Operationalization
<i>Income</i>	Interval
<i>Education</i>	Interval
<i>Origin of degree</i>	
US, UK, Western & Northern Europe, Australia*	1 = Yes, 0 = No
Canada	1 = Yes, 0 = No
East & South Europe	1 = Yes, 0 = No
South America, Africa, Oceania	1 = Yes, 0 = No
Asia & the Middle East	1 = Yes, 0 = No
<i>Field of study</i>	
Applies studies*	1 = Yes, 0 = No
Liberal field	1 = Yes, 0 = No
Commerce, management, business	1 = Yes, 0 = No
No specialization	1 = Yes, 0 = No
<i>Official languages proficiency</i>	Interval
<i>Canadian work experience</i>	Interval
<i>Foreign work experience</i>	Interval
<i>Number of hours worked per week</i>	Interval
<i>Occupation</i>	
Management, business, finance, administration*	1 = Yes, 0 = No
Health, natural & applied sciences	1 = Yes, 0 = No
Sales & service occupations	1 = Yes, 0 = No
Trades, transport, primary industry, manufacturing, utilities	1 = Yes, 0 = No
<i>Living in Toronto, Vancouver, Montreal</i>	1 = Yes, 0 = No
<i>Province of residence</i>	
Ontario*	1 = Yes, 0 = No
Quebec	1 = Yes, 0 = No
Prairie (MB, AB, SK)	1 = Yes, 0 = No
British Columbia	1 = Yes, 0 = No
<i>Gender</i>	1 = Male, 0 = Female
<i>Visible minority status</i>	1 = Yes, 0 = No
<i>Group activities participation</i>	1 = Yes, 0 = No
<i>Mother's education</i>	Interval
<i>Father's education</i>	Interval
<i>Spouse's education</i>	Interval

* Reference category

assumptions that in some cases do not apply (i.e. age at start of schooling, maternity leave, unemployment, time-off). Moreover, this variable is derived based

on respondent's years of schooling, which again is a derived measure. These limitations must be taken into account when reading the results. At the same time, work experience is also derived based on respondent's age, which is a documented human capital variable (Osberg 1981), thus becoming a proxy variable of age. Variables used to compute work experience, such as age and age at immigration, were dropped from the analysis due to multicollinearity with the work experience variables.

In the context of immigration studies, researchers distinguish between Canadian work experience and foreign work experience, because they are differently valued in the Canadian labour market (Basran and Zong 1998, Wanner 1998). For Canadian-born individuals, Canadian work experience (CWE) is computed by subtracting years of schooling (ED) plus six from age (A):

$$\text{CWE} = \text{A} - (\text{ED} + 6)$$

For immigrants, if the respondent finished school after immigrating, the variable is computed in the same way. If the immigrant arrived to Canada after finishing school, Canadian work experience is calculated by subtracting age at immigration (AI) from age¹⁰:

$$\text{CWE} = \text{A} - \text{AI}$$

Foreign work experience (FWE) is computed for immigrants only. If the respondent immigrated after having finished school, then she/he has foreign work experience, which is computed by subtracting years of schooling plus 6 from age at immigration:

¹⁰ Canadian work experience and foreign work experience are normally distributed (see Table 3).

$$FWE = AI - (ED + 6)$$

If the respondent finished school after immigration, she/he is considered not to have foreign work experience and is attributed a value of 0.

Previous research has documented that knowledge of official languages is a significant predictor of economic performance in the Canadian labour market (Boyd 1999, Kazemipur and Halli 2001). Looking for a typology of languages used in Canada, Boyd's (1999) analysis on the 1991 census used an index of three measures of language: mother tongue, language used in the home, and the ability to carry on a conversation in English and/or French. Boyd distinguished between four types (in descending order): type I – persons who report English and/or French as mother tongue or home language, and who indicate their ability to carry on a conversation in one of those languages; type II – persons with a mother tongue other than English and/or French, but with home language and conversational ability in English and/or French; type III – persons with a mother tongue and home language other than English and/or French, but with official language English and/or French; type IV – official language neither English nor French.

Similarly, in the present study, in order to measure the official language proficiency of respondents, an index is created based on six variables measuring languages spoken with parents before the age of 15 years, languages spoken with siblings before the age of 15 years, first languages, all languages spoken, languages spoken at home, and languages spoken with friends. In order to measure official languages proficiency from low to high, each of these variables is

measured on a 3-category scale (1 = non-official languages only, 2 = official and non-official languages, 3 = official languages only). As a result, the index (alpha = 0.9 for each immigrant group) measures the official languages proficiency on a 13-category scale ranging from 6 to 18¹¹.

The EDS dataset includes seven variables measuring use of official languages: the six above-mentioned variables and languages spoken at work. In order to understand how to measure language proficiency, principal component factor analysis was employed. The significant Bartlett's test and the above 0.8 KMO and MSA values indicate that the correlation matrix is factorable¹². The scree plot, the cumulative variance explained by the factors, and the eigenvalues all indicate that the variables load on a single factor (see Table 2). Because the language spoken at work has a lower factor loading (0.4) and because it is often not a matter of choice, with English and/or French being in most cases mandatory, this variable was removed from the factor analysis.

Scassa (1994: 106) distinguishes between standard and non-standard language, where "standard speech refers to the combination of a standard language code and a particular set of conventions of speech used by the elite of the dominant language group". Non-standard language refers to fluency problems (errors in grammar and pronunciation, limited vocabularies, difficulties with idiomatic expressions), accent and non-standard varieties of the dominant

¹¹ The official languages proficiency variable is not entered in the multivariate analysis for Canadian-born individuals, as the index is negatively skewed and positively kurtosed (see Table 3). For the three immigrant groups the language index is normally distributed.

¹² The only indication of low factorability is the low value of the determinant (0.01).

Table 2. Means, standard deviations, and factor loadings for the measure of official languages proficiency

Variable	Mean	SD	Factor loading	% variation	Eigenvalue
Immigrant population					
Factor 1				70%	4.2
<i>Languages spoken with parents before the age of 15 years</i>	1.67	0.93	0.92		
<i>Languages spoken with siblings before the age of 15 years</i>	1.86	0.97	0.89		
<i>First languages</i>	1.60	0.90	0.88		
<i>All languages spoken</i>	2.23	0.47	0.86		
<i>Languages spoken at home</i>	2.19	0.93	0.77		
<i>Languages spoken with friends</i>	2.46	0.82	0.65		
Total Variance (n=3422)				70%	
Short- and medium-term immigrant population					
Factor 1				67%	4.0
<i>Languages spoken with parents before the age of 15 years</i>	1.29	0.69	0.94		
<i>Languages spoken with siblings before the age of 15 years</i>	1.34	0.72	0.92		
<i>First languages</i>	1.29	0.68	0.91		
<i>All languages spoken</i>	2.04	0.37	0.78		
<i>Languages spoken at home</i>	1.63	0.88	0.75		
<i>Languages spoken with friends</i>	2.09	0.92	0.57		
Total Variance (n=846)				67%	
Long-term immigrant population					
Factor 1				68%	4.1
<i>Languages spoken with parents before the age of 15 years</i>	1.79	0.96	0.92		
<i>Languages spoken with siblings before the age of 15 years</i>	2.02	0.98	0.88		
<i>First languages</i>	1.70	0.94	0.87		
<i>All languages spoken</i>	2.29	0.48	0.86		
<i>Languages spoken at home</i>	2.37	0.88	0.74		
<i>Languages spoken with friends</i>	2.58	0.75	0.65		
Total Variance (n=2569)				68%	

language. Thinking of language in these terms makes us realize that the instruments generally used to measure official languages proficiency have limitations, as they do not measure such manifestations of non-standard language. This limitation applies to the present study as well; as such, it must be taken into account when interpreting the results.

Human capital researchers (Osberg 1981), as well as immigration scholars (deSilva 1992), have shown that income increases with the number of hours worked per week. This variable is a measure of the incidence of part-time work on income¹³. Frequency of work is also measured by the number of weeks worked per year. However, these variables are not entered in the multivariate analysis, as they are negatively skewed and positively kurtosed for all four populations (see Table 3).

Origin of degree is hypothesized to moderate the relationship between education and income and is measured by five dummy variables differentiating between respondents with degrees obtained in Canada; United States, United Kingdom, Western and Northern Europe, Australia; Eastern and Southern Europe; Central and South America, Caribbean, Bermuda, Africa, Oceania (without Australia); Asia and the Middle East¹⁴. This operationalization allows me to examine not only the different economic value attributed to degrees depending on whether they were obtained inside or outside Canada, but also how their value

¹³ Number of hours worked per week is normally distributed for the Canadian-born population. However, it is slightly positively kurtosed for the three immigrant populations (see Table 3).

¹⁴ Origin of degree is measured based on the answers EDS respondents provided to the question "In what country did you attain this education [the highest level of education]?".

varies depending on the region where it was obtained. While I am aware that these categories comprise countries with education of varying quality and which are also perceived differently in the Canadian labour market, statistical reasons dictate including them in the same category, namely the need to have enough variability for each dummy variable¹⁵.

For the univariate and bivariate analysis, I operationalized country of birth into five categories: United States, United Kingdom, Western and Northern Europe, Australia; Eastern and Southern Europe; Central and South America, Caribbean, Bermuda, Africa, Oceania (without Australia); East and Southeast Asia; West Central, South Asia and the Middle East. However, this variable is multicollinear with the origin of degree, and consequently is not used in the regression analysis.

While the EDS questionnaire does not ask about the respondent's field of study, the Census does and the EDS dataset includes this information. Field of study is measured by four dummy variables distinguishing between specializing in liberal arts; commerce, management and business; applied studies; and not having a specialization (mainly due to lack of post-secondary studies). The liberal arts include the following specializations: educational, recreational and counselling services; fine and applied arts; humanities and related fields; and social sciences and related fields. Applied studies consist of the following

¹⁵ For the long-term immigrants sample, some of the origin of degree dummy variables have relatively lower variability: Central, South America, Caribbean, Bermuda, Africa and Oceania - 9.3 percent, and Eastern and Southern Europe - 8 percent. However, further collapsing the categories would result in limitations in interpreting the results.

specializations: agricultural, biological, nutritional, and food sciences; engineering and applied sciences; applied science technologies and trades; health professions and related technologies; and mathematics, computer and physical sciences.

Occupation is a strong predictor of employment earnings to such an extent that some researchers measure economic performance by occupational status rather than income (Boyd 1985, 1999; Wanner 1998). In the present study, occupation is operationalized by four dummy variables differentiating between management, business, finance and administrative occupations; health, natural and applied sciences, social science, education, government, art, culture, recreation, sport occupations; sales, service occupations; trades, transport, equipment operators, primary industry, processing, manufacturing, utilities occupations. It is predicted that respondents with occupations from the first two dummy variables have higher incomes than those from the latter two dummy variables.

At the univariate and bivariate level I also examine the industry location of respondents. This variable is operationalized into six categories, which distinguish between agriculture, extraction, construction, and transportation; manufacturing; wholesale and retail trade; finance, insurance, real estate, professional services; education, health care, arts; public and private services. However, due to multicollinearity with the dummy variables measuring occupation, this variable was removed from the multivariate analysis.

Place of residence is a significant predictor of economic performance (Li 2001, 2003b). The province of residence and the size of the place of residence

greatly affect income. Moreover, the immigrant population is highly concentrated in urban areas, with Toronto, Vancouver and Montreal receiving more than 70 percent of the immigrants arriving to Canada (Hum and Simpson 2004). For these reasons, place of residence is a central variable in the analysis. In this study, the geographical impact on earnings is measured by two variables. First, the province of residence is measured by four dummy variables: residing in Quebec; Ontario; Manitoba, Saskatchewan, Alberta; British Columbia. Second, the size of the city of residence is measured by a dichotomous variable (1 = residing in Toronto, Vancouver or Montreal, 0 = not residing in Toronto, Vancouver or Montreal)¹⁶.

It is not the purpose of this study to test social capital theory. However, current research indicates that human capital characteristics represent some, but not all the main factors influencing economic performance. I enter in the analysis a series of variables that measure social capital. One of them is the participation in various group activities, which is operationalized as a dummy variable (1 = participation, 0 = lack of participation)¹⁷. Li (2004) emphasizes that the effectiveness of one's social network is class-based; therefore the level of education of family members is a measure of the social class location of an individual and a second indicator of social capital. I examine the highest level of

¹⁶ The initial intention was to distinguish between residing in Toronto, Vancouver or Montreal; in other Census Metropolitan Areas (CMAs); and not residing in a CMA. However, the low proportion of short- and medium-term immigrants from non-CMAs (5.6 percent) prevented me from using this operationalization.

¹⁷ Group participation is established based on the answers EDS respondents provided to the question "Are you a member of, or have you taken part in the activities of, any groups or organizations at anytime in the past 12 months? For example, a sports team, a hobby club, a community organization, an ethnic association, etc."

schooling attained by the respondent's father, mother, and spouse¹⁸. In the case of spouse's education, a score of 0 is attributed to an unmarried respondent, indicating a lack of spousal social capital.

A number of socio-demographic variables are also included in the analysis. Research has documented gender as a strong predictor of income, with males obtaining a higher income than females (Li 2003a, 2001; Boyd 1999). For this reason, some researchers prefer to do separate analyses for females and males (Li 2000), or to limit their analyses to men (Boyd 1985; Wanner 1998) or to women (Wilkinson et al. 2006). In this study, a dichotomous variable (1 = male, 0 = female) was entered in the regression analysis. Similarly, visible minority status is used as a measure of racial discrimination in the labour market and distinguishes between white and visible minority respondents (0, 1)¹⁹.

The main hypotheses of the present study are as follows: a) based on the assumptions of human capital theory, education, work experience, official languages proficiency, and number of hours worked per week positively affect income; b) origin of education moderates the relationship between education and

¹⁸ Mother, father, and spouse's highest level of schooling are measured on 0 to 6 scales, where 0 = No education, 1 = Less than a high school diploma (includes no schooling), 2 = High school diploma, 3 = Some university or college, 4 = Diploma or certificate from college, CEGEP, nursing school, 5 = Bachelor or undergraduate university degree, 6 = Doctorate, Master or Medicine. The three variables are reverse coded so that the higher value represents a higher level of schooling and are normally distributed (see Table 3).

¹⁹ For the Canadian-born population, visible minority status has 2 percent variability. Consequently, this variable is not entered in the multivariate analysis for this population. Visible minority status is established based on the answers EDS respondents provided to the question "People in Canada come from many racial or cultural groups. You may belong to more than one group on the following list. Are you 1) white, 2) Chinese, 3) South Asian, 4) Black, 5) Filipino, 6) Latin American, 7) Southeast Asian, 8) Arab, 9) West Asian, 10) Japanese, 11) Korean, 12) Aboriginal?"

income; and c) the return to education moderated by origin of education varies depending on immigrant's stage of integration. The following section discusses the methodology used to test these hypotheses.

3.4 Discussion of data analysis technique

The analysis is performed for four populations: Canadian-born, immigrants, SMT immigrants, and LT immigrants. To understand the differences between these four populations in the distribution of the selected variables, univariate analysis is performed. A second step of the analysis is the bivariate analysis performed for each of the four populations, in order to measure the relationship between each selected independent variable and the dependent variable. The bivariate analysis is useful in terms of identifying the statistically significant and strong relationships between various independent variables and the dependent variable. The multivariate analysis consists of ordinary least squares (OLS) regression analysis. A series of interaction terms, computed by multiplying level of education and origin of degree, are entered in the regression analysis in order to assess whether origin of degree moderates the relationship between education and income. OLS regression analysis is deemed appropriate because the dependent variable income is an interval level variable and because it allows measuring the effect of each independent variable on income, while controlling for the other independent variables. However, despite its appropriateness, regression analysis has its limitations (i.e. does not identify indirect and spurious effects), which should be taken into account when reading the findings.

The assumptions of OLS regression analysis are met. The interval variables and the ordinal variables that act like interval variables are normally distributed, as indicated by the within accepted limits skewness and kurtosis values (less than 2), with the exceptions mentioned in the precedent section and indicated by Table 3. Outliers were identified by plotting the z-scores and were deleted as they represented less than 2.8 percent on any variable and on any population²⁰. The independent variables entered in the regression are not multicollinear as indicated by the Variance Inflation Factor values ranging from 1.0 to an isolated 4.4 (see Appendices B to E for correlation matrices of independent variables).

In this chapter I have presented details of the dataset, operationalization of the variables, and methodology used for analysis. I now move to discuss the results of the analysis, with focus on the major findings.

²⁰ For any of the interval level variables included in the multivariate analysis, the deleted outliers represent less than 1.1 percent for Canadian-born, 2.6 percent for all immigrants, 2.8 percent for SMT immigrants, and 1.8 percent for LT immigrants.

Chapter Four: Results and Discussion

The present chapter consists of a discussion of the results. The first three sections of the chapter distinguish between the findings of the univariate, bivariate, and multivariate analysis. The chapter ends with a discussion of the main findings, as they relate to human capital theory, immigration literature, and Canadian immigration policy.

4.1 Results of the univariate analysis

Tables 3 to 6 present the results of the univariate analysis, which is the first step in analyzing the differences between the populations under study. I organize the findings in two sections. Section 4.1.1 addresses the differences between immigrants and non-immigrants (see Tables 3, 4 and 5), and section 4.1.2 examines the differences between SMT and LT immigrants (see Tables 3, 4 and 6).

4.1.1 Differences between immigrants and non-immigrants

Not surprisingly, there is a significant difference between the earnings of native- and foreign-born Canadians, where the mean income of the former is \$42,554, and the latter is \$40,612. This earnings differential might be explained by the difference in various characteristics between the two populations. For example, compared to immigrants, the Canadian-born have the advantage of having in average a longer Canadian work experience (21.2 years compared to 16.7 years), a better knowledge of the official languages (on a scale from 6 to 18, a score of 17.7 compared to a score of 12), and slightly higher mother's level of education (on a scale from 0 to 6, a score of 2.1 compared to a score of 2.0). The native-born also tend to be more concentrated in industries such as education and

Table 3. Mean, median, standard deviation, skewness, and kurtosis values for interval level variables

Variable	Mean	Median	SD	Skewness	Kurtosis
Canadian-born population					
<i>Annual Earnings</i>	42,554	40,000	21,675	0.915	1.236
<i>Years of schooling</i>	14.13	14.00	2.882	0.385	-0.084
<i>Language index</i>	17.69	18.00	1.110	-4.368	21.042
<i>Age</i>	41.26	41.00	9.928	0.118	-0.992
<i>Canadian work experience</i>	21.17	21.00	10.889	0.165	-0.818
<i>Number of weeks worked per year</i>	49.86	52.00	5.118	-2.527	5.489
<i>Number of hours worked per week</i>	40.47	40.00	8.869	0.223	1.764
<i>Mother's highest level of education (0-6)</i>	2.09	2.00	1.370	1.161	0.22
<i>Father's highest level of education (0-6)</i>	2.05	1.00	1.506	1.311	0.480
<i>Spouse's highest level of education (0-6)</i>	2.14	2.00	1.935	0.355	-1.212
Immigrant population					
<i>Annual Earnings</i>	40,612.1	36,000	22,438.7	0.975	0.961
<i>Years of schooling</i>	14.60	15.00	3.496	-0.092	0.423
<i>Years since immigration</i>	20.72	20.00	13.482	0.433	-0.668
<i>Language index</i>	12.02	11.00	4.179	0.346	-1.406
<i>Age</i>	43.25	43.00	9.881	0.049	-0.934
<i>Age at immigration</i>	22.70	24.00	12.081	0.023	-0.419
<i>Canadian work experience</i>	16.72	14.00	10.843	0.428	-0.827
<i>Foreign work experience</i>	5.71	3.00	6.925	1.178	0.565
<i>Number of weeks worked per year</i>	50.50	52.00	4.523	-3.314	10.378
<i>Number of hours worked per week</i>	40.86	40.00	7.797	0.239	2.021
<i>Mother's highest level of education (0-6)</i>	1.99	1.00	1.434	1.393	0.704
<i>Father's highest level of education (0-6)</i>	2.45	2.00	1.697	0.826	-0.793
<i>Spouse's highest level of education (0-6)</i>	2.42	2.00	2.065	0.264	-1.346

Variable	Mean	Median	SD	Skewness	Kurtosis
Short- and medium-term immigrant population					
<i>Annual Earnings</i>	31,739.6	28,000	19,482.7	1.215	1.387
<i>Years of schooling</i>	15.45	16.00	3.688	-0.121	0.424
<i>Years since immigration (0-9)</i>	4.81	5.00	2.768	0.007	-1.237
<i>Language index</i>	9.68	9.00	3.405	1.482	1.102
<i>Age</i>	38.34	37.00	8.533	0.636	-0.159
<i>Age at immigration</i>	33.12	32.00	8.765	0.524	0.045
<i>Canadian work experience</i>	4.98	5.00	2.731	0.054	-1.105
<i>Foreign work experience</i>	11.66	11.00	8.650	0.746	0.036
<i>Number of weeks worked per year</i>	48.95	52.00	7.129	-2.336	4.214
<i>Number of hours worked per week</i>	40.85	40.00	7.386	0.358	2.718
<i>Mother's highest level of education (0-6)</i>	2.12	1.00	1.549	1.234	0.123
<i>Father's highest level of education (0-6)</i>	2.65	2.00	1.772	0.625	-1.182
<i>Spouse's highest level of education (0-6)</i>	2.84	3.00	2.197	0.001	-1.530
Long-term immigrant population					
<i>Annual Earnings</i>	43,748.2	40,000	22,919.4	1.001	1.189
<i>Years of schooling</i>	14.33	14.00	3.382	-0.131	0.419
<i>Years since immigration (10+)</i>	25.96	26.00	11.325	0.480	-0.513
<i>Language index</i>	12.78	12.00	4.124	0.084	-1.506
<i>Age</i>	44.88	45.89	9.756	-0.152	-0.846
<i>Age at immigration</i>	19.12	21.00	10.938	0.039	-0.706
<i>Canadian work experience</i>	20.74	20.00	9.587	0.230	-0.721
<i>Foreign work experience</i>	3.85	0.00	5.474	1.426	1.159
<i>Number of weeks worked per year</i>	50.85	52.00	3.729	-3.675	13.362
<i>Number of hours worked per week</i>	41.17	40.00	8.384	0.488	2.175
<i>Mother's highest level of education (0-6)</i>	1.95	1.00	1.392	1.447	0.926
<i>Father's highest level of education (0-6)</i>	2.38	2.00	1.665	0.898	-0.623
<i>Spouse's highest level of education (0-6)</i>	2.29	2.00	2.001	0.338	-1.251

Table 4. Difference of means and t-test of significance, for interval level variables

Variables	Difference of means for Canadian-born and immigrants	Difference of means for SMT and LT immigrants
<i>Annual Earnings (\$)</i>	1,941.6**	-12,008.6**
<i>Years of schooling</i>	-0.469**	1.123**
<i>Canadian work experience (years)</i>	4.456**	-15.761**
<i>Foreign work experience (years)</i>	-	7.813**
<i>Language index</i>	5.667**	-3.104**
<i>Age (years)</i>	-1.993**	-6.543**
<i>Age at immigration (years)</i>	-	13.999**
<i>Number of weeks worked per year</i>	-0.632**	-1.904**
<i>Number of hours worked per week</i>	-0.387	-0.317
<i>Mother's highest level of schooling</i>	0.099*	0.171*
<i>Father's highest level of schooling</i>	-0.404**	0.272**
<i>Spouse's highest level of schooling</i>	-0.277**	0.554**

* = 0.05, ** = 0.001

Table 5. Cross-tabulations and chi-square test of significance for immigrants and non-immigrants for nominal variables

Variables	Canadian-born (n=3464)		Immigrants (n=3422)	
	%	n	%	n
<i>Origin of degree</i>				
Canada	-		43.9	1499
US, UK, Western, Northern Europe, Australia	-		11.3	386
Eastern, Southern Europe	-		10.0	342
Central, South America, Caribbean, Bermuda, Africa, Oceania	-		10.2	349
Asia, Middle East	-		24.5	836
<i>Field of study**</i>				
No specialization	37.3	1293	36.2	1238
Liberal arts	21.8	754	15.8	541
Commerce, management, business	14.5	504	14.2	486
Applied studies	26.4	913	33.8	1157
<i>Country of birth</i>				
US, UK, Western, Northern Europe, Australia	-		23.5	805
Eastern, Southern Europe	-		18.0	614
Central, South America, Caribbean, Bermuda, Africa, Oceania	-		21.4	733
East, Southeast Asia	-		21.9	748
West Central, South Asia, Middle East	-		15.2	522
<i>Sex</i>				
Female	46.3	1603	45.3	1551
Male	53.7	1861	54.7	1871
<i>Occupation</i>				
Management, business, finance, administration	29.4	1015	27.2	925
Health, natural sciences, social science, education, government	25.9	894	25.6	873
Sales, service occupations	21.1	728	21.8	741
Trades, transport, primary industry, processing, manufacturing	23.7	821	25.4	865

Variables	Canadian-born (n=3464)		Immigrants (n=3422)	
	%	n	%	n
<i>Industry**</i>				
Agriculture, extraction	16.9	586	14.7	501
Manufacturing	16.4	567	21.9	745
Wholesale & retail trade	12.1	418	11.0	375
Finance, insurance	11.3	392	15.6	532
Education, health care	27.2	942	21.5	732
Public & private services	16.0	553	15.2	519
<i>Visible minority status**</i>				
No	98.0	3381	45.8	1555
Yes	2.0	70	54.2	1840
<i>Province of residence**</i>				
Quebec	31.7	1097	11.9	407
Ontario	40.3	1395	58.4	1998
Manitoba, Saskatchewan, Alberta	18.0	625	12.9	440
British Columbia	10.0	347	16.9	577
<i>Residing in Toronto, Vancouver or Montreal**</i>				
No	71.5	2478	34.4	1179
Yes	28.5	986	65.6	2244
<i>Group activities participation**</i>				
No	51.5	1781	61.3	2095
Yes	48.5	1678	38.7	1324

* = 0.05, ** = 0.001

health care, while the foreign-born are more concentrated in manufacturing industries. Moreover, while only 2 percent of Canadian-born respondents are visible minorities, this group represents more than half of the immigrant population, a status that has been shown to negatively affect earnings (Kazemipur and Halli 2001a, 2001b; Li 2003b; Pendakur 2000). The Canadian-born also tend to participate to various group activities²¹ more than their foreign-born counterparts (49 percent versus 39 percent), which might contribute to the explanation of the income differential registered by these two populations. Through participation in various group activities, individuals develop and maintain networks that represent a form of social capital, which in turn can positively affect their economic success.

At the same time, the immigrant population has characteristics that should positively increase their economic performance. Compared to the Canadian-born, immigrants have higher levels of education (14.6 years versus 14.1 years), age (43.3 years versus 41.3 years), number of weeks worked per year (50.1 weeks versus 49.9 weeks), and father and spouse's education level. Moreover, more immigrants than Canadian-born tend to be specialized in applied studies²², and less likely to specialize in liberal arts²³. Immigrants tend to live in more economically profitable geographical areas. Thus, more immigrants tend to live in

²¹ 'Participation in various group activities' is a measure of an individual's social network, and is thus used as an operationalization of social capital.

²² Applied studies consist of the following specializations: agricultural, biological, nutritional, and food sciences; engineering and applied sciences; applied science technologies and trades; health professions and related technologies; and mathematics, computer and physical sciences.

²³ Liberal arts include the following specializations: educational, recreational and counselling services; fine and applied arts; humanities and related fields; and social sciences and related fields.

higher income provinces (see section 4.2), namely in Ontario and British Columbia (58 percent and 17 percent of immigrants, compared to 40 percent and 10 percent of non-immigrants). Similarly, while only 29 percent of Canadian-born live in Toronto, Vancouver, or Montreal, 66 percent of immigrants live in one of these cities, choice which positively affects their earnings (see section 4.2).

4.1.2 Differences between short- and medium-term immigrants and long-term immigrants

While there is a significant difference between the incomes of foreign- and native-born Canadians, a considerably larger difference exists between immigrants living in Canada for less than 10 years and those living for more than 10 years. Thus, SMT immigrants earn on average \$31,740, compared to LT immigrants whose mean employment income is \$43,748²⁴. This might be explained by the fact that LT immigrants have a longer Canadian work experience (20.7 years compared to 5 years), a better knowledge of English and/or French (on a scale from 6 to 18, a score of 13 compared to a score of 10), a higher mean age (44.9 years compared to 38.8 years), a lower mean age at immigration (19.1 years compared to 33.1 years), and more weeks worked per year (50.1 weeks compared to 49 weeks) than SMT immigrants. Furthermore, while 55 percent of LT immigrants obtained their last degree in Canada, only 11 percent of SMT immigrants did. About half of LT immigrants are white and born in Europe, the United States, or Australia. At the same time, 70 percent of SMT immigrants are non-white and born outside these regions, meaning they are more likely to

²⁴ The mean income of LT immigrants is higher than for Canadian-born.

experience discrimination than their LT counterparts. Immigrants living in Canada for more than 10 years also tend to be more represented in the managerial, financial, and administration occupations, while the opposite is true for more recent immigrants who tend to be more concentrated in sales and service occupations. Similarly, SMT immigrants work mostly in manufacturing, and LT immigrants work mostly in education and health care. LT immigrants also tend to be slightly more concentrated in Ontario (60 percent versus 54 percent). Immigrants living in Canada for more than 10 years tend to participate to group activities more than their more recent counterparts. All these differences between SMT and LT immigrants might explain the earnings differential between the two immigrant groups.

However, compared to LT immigrants, SMT immigrants are more educated (15.5 years versus 14.3 years), have a longer foreign work experience (11.7 years versus 3.9 years), and higher familial social capital, as their parents and spouses are more educated. Moreover, while 41 percent of SMT immigrants are specialized in applied studies, 38 percent of LT immigrants have no specialization. SMT immigrants also tend to be located in one of the three largest Canadian metropolitan centers more than their LT counterparts. Section 4.3, which discusses the results of the multivariate analysis, will shed more light on the differences between these four populations, and the predictors of their economic performance.

Table 6. Cross-tabulations and chi-square test of significance for short- and medium-term as well as long-term immigrants, for nominal variables

Variables	Short- & medium-term immigrants (n=846)		Long-term immigrants (n=2569)	
	%	n	%	n
<i>Origin of degree**</i>				
Canada	10.8	91	54.8	1405
US, UK, Western, Northern Europe, Australia	11.2	94	11.3	291
Eastern, Southern Europe	16.2	136	8.0	205
Central, South America, Caribbean, Bermuda, Africa, Oceania	13.0	109	9.3	238
Asia, Middle East	48.9	411	16.6	425
<i>Field of study**</i>				
No specialization	30.0	254	38.1	978
Liberal arts	13.9	118	16.4	422
Commerce, management, business	14.9	126	14.0	360
Applied studies	41.1	348	31.5	808
<i>Country of birth**</i>				
US, UK, Western, Northern Europe, Australia	8.3	70	28.6	734
Eastern, Southern Europe	17.3	1468	18.2	467
Central, South America, Caribbean, Bermuda, Africa, Oceania	17.5	148	22.6	581
East, Southeast Asia	31.9	270	18.6	477
West Central, South Asia, Middle East	25.1	212	12.1	310
<i>Sex</i>				
Female	42.8	362	46.1	1184
Male	57.2	484	53.9	1385
<i>Occupation**</i>				
Management, business, finance, administration	20.2	170	29.5	755
Health, natural sciences, social science, education, government	27.9	235	24.9	637
Sales, service occupations	26.6	224	20.1	514
Trades, transport, primary industry, processing, manufacturing	25.3	213	25.5	651

Variables	Short- & medium-term immigrants (n=846)		Long-term immigrants (n=2569)	
	%	n	%	n
<i>Industry**</i>				
Agriculture, extraction	14.3	121	14.8	379
Manufacturing	24.6	208	21.0	537
Wholesale & retail trade	9.6	81	11.4	292
Finance, insurance	19.4	164	14.4	367
Education, health care	16.1	136	23.3	594
Public & private services	15.9	134	15.0	384
<i>Visible minority status**</i>				
No	29.5	247	51.2	1305
Yes	70.5	590	48.8	1246
<i>Province of residence*</i>				
Quebec	12.8	108	11.7	300
Ontario	54.2	459	59.7	1534
Manitoba, Saskatchewan, Alberta	14.8	125	12.3	315
British Columbia	18.3	155	16.4	421
<i>Residing in Toronto, Vancouver or Montreal**</i>				
No	26.7	226	37.0	951
Yes	73.3	621	63.0	1619
<i>Group activities participation**</i>				
No	68.2	576	58.9	1513
Yes	31.8	269	41.1	1054

* = 0.05, ** = 0.001

Table 7. Correlation coefficients of income and selected interval independent variables, for four populations (Canadian-born, immigrants, short- and medium-term immigrants, long-term immigrants)

Variables	Canadian-born (n=3464)	Immigrants (n=3422)	Short- & medium-term immigrants (n=846)	Long-term immigrants (n=2569)
<i>Years of schooling</i>	0.358**	0.304**	0.372**	0.328**
<i>Canadian work experience (years)</i>	-0.013	0.186**	0.052	0.069**
<i>Foreign work experience (years)</i>	-	-0.211**	-0.140**	-0.148**
<i>Language index</i>	-0.068**	0.247**	0.239**	0.180**
<i>Age (years)</i>	0.095**	0.123**	0.009	0.088**
<i>Age at immigration (years)</i>	-	-0.167**	-0.021	-0.077**
<i>Number of weeks worked per year</i>	0.149**	0.191**	0.217**	0.160**
<i>Number of hours worked per week</i>	0.453**	0.326**	0.222**	0.355**
<i>Mother's highest level of schooling</i>	0.120**	0.163**	0.216**	0.164**
<i>Father's highest level of schooling</i>	0.123**	0.140**	0.231**	0.127**
<i>Spouse's highest level of schooling</i>	0.268**	0.192**	0.219**	0.233**

** = 0.01, * = 0.05

Table 8. Mean income (dollars) by selected nominal independent variables, for four populations

Variables	Canadian-born	Immigrants	Short- & medium-term immigrants	Long-term immigrants
<i>Origin of degree</i>		**	**	**
Canada	-	44,973	33,716	46,020
US, UK, Western, Northern Europe, Australia	-	50,438	45,443	52,027
Eastern, Southern Europe	-	38,356	36,025	39,865
Central, South America, Caribbean, Bermuda, Africa, Oceania	-	34,294	30,863	35,702
Asia, Middle East	-	32,276	27,318	37,366
<i>Field of study</i>	**	**	**	**
No specialization	35,663	33,000	22,753	36,021
Liberal arts	45,369	39,689	26,252	43,390
Commerce, management, business	44,790	41,073	33,244	43,858
Applied studies	48,809	49,131	39,766	53,391
<i>Country of birth</i>		**	**	**
US, UK, Western, Northern Europe, Australia	-	48,104	44,014.18	48,910
Eastern, Southern Europe	-	40,529	36,050.08	42,192
Central, South America, Caribbean, Bermuda, Africa, Oceania	-	38,440	31,521.42	40,417
East, Southeast Asia	-	37,196	29,573.57	42,155
West Central, South Asia, Middle East	-	37,373	27,865.03	42,734
<i>Sex</i>	**	**	**	**
Female	35,497	33,411	26,738	35,708
Male	48,702	46,658	35,561	50,702
<i>Occupation</i>	**	**	**	**
Management, business, finance, administration	44,096	45,585	35,900	48,123
Health, natural sciences, social science, education, government	48,301	48,942	42,658	51,702
Sales, service occupations	31,798	27,970	22,258	30,598
Trades, transport, primary industry, processing, manufacturing	43,943	37,684	26,661	41,053

Variables	Canadian-born	Immigrants	Short- & medium-term immigrants	Long-term immigrants
<i>Industry</i>	**	**	**	**
Agriculture, extraction	44,021	39,696	29,305	42,328
Manufacturing	49,091	41,668	30,009	46,108
Wholesale & retail trade	36,395	33,778	25,193	36,245
Finance, insurance	43,991	48,762	43,587	51,588
Education, health care	40,952	40,793	33,304	43,414
Public & private services	40,670	35,875	24,356	40,074
<i>Visible minority status</i>	-	**	**	**
No	42,644	45,404	39,871	46,769
Yes	39,585	36,796	28,543	40,793
<i>Province of residence</i>	**	**	-	**
Quebec	38,481	35,805	30,322	38,237
Ontario	45,864	42,430	32,321	45,580
Manitoba, Saskatchewan, Alberta	41,603	38,623	31,667	41,417
British Columbia	43,974	39,230	31,095	42,726
<i>Residing in Toronto, Vancouver or Montreal</i>	**	*	-	-
No	41,168	41,937	30,759	44,398
Yes	46,055	39,913	32,092	43,366
<i>Group activities participation</i>	**	**	**	**
No	40,306	37,755	29,910	40,751
Yes	45,013	45,223	35,698	48,120

** = 0.001, * = 0.05

4.2 Results of the bivariate analysis

Tables 7 and 8 list the results of the bivariate analysis. Table 7 contains the correlations between income and each interval or ordinal level independent variable. Results are similar for each of the four populations under study, with some exceptions. Most selected independent variables are associated with income and the coefficients are statistically significant. The insignificant variables are work experience for the Canadian-born population, and Canadian work experience, age and age at immigration for SMT immigrants. These results are an indication of the direction and strength of income predictors, and are examined more fully at the multivariate level. Table 7 finds that income increases with education, Canadian work experience, proficiency of official languages, age, number of weeks worked per year and hours worked per week, and with mother, father, and spouse's level of education. Similarly, for immigrants income decreases with foreign work experience and with age at immigration. The correlation between education and income is the strongest for each population. These results are what we would expect from human capital theory.

Table 8 contains the mean income by selected nominal level independent variables. The large majority of the associations of income and each independent variable are significant. The insignificant variables are visible minority status for Canadian-born, province of residence for SMT immigrants, and the size of the place of residence for both SMT and LT immigrants. While education is strongly associated with income, of importance are also the field of study and the origin of degree. Of all specializations, those in applied studies register the highest

earnings. For any immigrant group, respondents with degrees obtained in United States and Western or Northern Europe register a significant income increase, compared to respondents with degrees from other regions. The same applies in terms of country of birth. The high-income occupations are the economic-related ones²⁵. Manufacturing for Canadian-born individuals, and finances for any immigrant population are the most lucrative industries. Higher group participation is associated with higher income, indicating that networking is a source of capital for both native- and foreign-born. The place of residence seems to affect earnings differently, depending on immigrant status and length of stay in Canada. Thus, Canadian-born workers residing in Ontario or in one of the three largest metropolitan cities register the highest earnings. However, living in Ontario is an advantage for LT immigrants, but not for ST immigrants and the association between income and residence in Toronto, Vancouver, or Montreal is not significant for either of the two populations. Table 8 also suggests that women and visible minorities might be subject to income discrimination, given their lower incomes.

4.3 Results of the multivariate analysis²⁶

Tables 9 and 10 display the unstandardized (B values) and standardized regression coefficients (beta values) for a series of ordinary least squares regression analyses with total income as the dependent variable, when

²⁵ Economic-related occupations include management, business, finance and administrative occupations.

²⁶ The data on which the reported results are obtained is weighted by using the standardized EDS weight variable in order to permit generalizability of the findings.

employment is the main source of income. The analyses are performed for four populations: native-born Canadians, all immigrants, SMT immigrants, and LT immigrants. Together, the independent variables account for more than 42 percent of the earnings variance for each of the four populations (adjusted $R^2 = 0.441, 0.444, 0.431, 0.423$ respectively). The regression equations include the same predictors for each model, except for origin of degree, foreign work experience, official languages proficiency, and visible minority status, which are excluded for Canadian-born, as they either do not apply to this population or have low variability. In discussing the factors influencing income, I first compare the native-born with all foreign-born individuals (see Table 9), and then short- and medium-term immigrants with long-term immigrants (see Table 10).

4.3.1 Canadian-born and immigrants' economic performance

With some exceptions, human capital characteristics are all statistically significant and strong predictors. For Canadian-born, after the impact of the number of hours worked per week ($\beta=0.363$), education is the next strongest predictor ($\beta=0.298$), followed by work experience ($\beta=0.210$). However, for immigrants, while human capital characteristics are still some of most important predictors of earnings, after number of hours worked per week ($\beta=0.235$), Canadian work experience ($\beta=0.225$) is a stronger predictor than education ($\beta=0.180$). This is one of the first indicators of the difference in valorization for immigrants' education. Thus, if for Canadian-born one year of schooling yields an increase in earnings of \$2,242 (SE=157), for immigrants this increase is only \$1,158 (SE=133).

Table 9. Unstandardized and standardized regression coefficients for predictor variables on income, Canadian-born and foreign-born individuals sample

Variables	Canadian-born			Immigrants		
	B	SE	β	B	SE	β
Intercept	-37,037.6	(3,083.5)***		-14,640.2	(3,689.0)***	
Education	2,241.6	(157.4)***	0.298	1,157.5	(132.6)***	0.180
Origin of degree						
Canada	-	-	-	-2,584.6	(1,104.5)*	-0.057
East & South Europe	-	-	-	-3,908.8	(1,527.0)*	-0.052
South America, Africa, Oceania	-	-	-	-4,242.2	(1,436.6)**	-0.057
Asia & the Middle East	-	-	-	-5,441.0	(1,343.1)***	-0.104
Field of study						
Liberal field	-4,069.9	(911.8)***	-0.077	-6,596.8	(985.6)***	-0.107
Commerce, management, business	-1,383.2	(1,063.0)	-0.023	-2,442.8	(1,077.6)*	-0.038
No specialization	-4,259.4	(880.2)***	-0.095	-4,226.8	(950.7)***	-0.091
Official languages proficiency	-	-	-	283.8	(99.8)**	0.053
Canadian work experience	418.6	(32.7)***	0.210	466.6	(35.8)***	0.225
Foreign work experience	-	-	-	-95.1	(58.3)	-0.029
Number of hours worked per week	887.2	(36.2)***	0.363	676.5	(41.6)***	0.235
Occupation						
Health, natural & applied sciences	-864.3	(899.1)	-0.017	1,726.8	(938.3)	0.034
Sales & service occupations	-7,567.0	(883.2)***	-0.142	-11,255.1	(940.7)***	-0.207
Trades, transport, primary industry, manufacturing & utilities	-2,843.5	(953.0)**	-0.056	-6,843.7	(969.7)***	-0.133
Living in Toronto, Vancouver, Montreal	4,604.3	(709.7)***	0.096	2,052.9	(817.5)*	0.043
Province of residence						
Quebec	-6,079.4	(728.0)***	-0.130	-6,480.1	(999.8)***	-0.094
Prairie (MB, AB, SK)	-2,636.7	(865.5)**	-0.047	-3,001.2	(1,111.2)**	-0.045
British Columbia	-1,722.9	(1053.0)	-0.024	-1,770.6	(863.0)*	-0.030

Variables	Canadian-born			Immigrants		
	B	SE	β	B	SE	β
Gender	7,867.0	(690.5)**	0.181	11,015.9	(687.0)***	0.244
Visible minority status	-	-	-	-2,907.2	(870.7)***	-0.065
Group activities participation	1,710.5	(613.4)**	0.039	2,895.7	(645.4)***	0.063
Mother's education	483.0	(264.7)	0.031	848.8	(287.0)**	0.054
Father's education	143.8	(235.0)	0.010	-1.0	(240.9)	0.000
Spouse's education	1,498.6	(161.0)***	0.134	1,176.9	(158.4)***	0.108
Adjusted R ²	0.441			0.444		

* Significant at $p < 0.05$; ** significant at $p < 0.01$; *** significant at $p < 0.001$.

Table 10. Unstandardized and standardized regression coefficients for predictor variables on income, short- and medium-term immigrants and long-term immigrants sample

Variables	Short- and Medium-term Immigrants			Long-term Immigrants		
	B	SE	β	B	SE	β
Intercept	-2,748.3	(6643.6)		-9,669.5	(4,454.0)*	
Education	868.7	(213.7)***	0.164	1,194.6	(166.8)***	0.176
Origin of degree						
Canada	-8,220.3	(2,469.1)***	-0.131	-2,651.0	(1,332.8)*	-0.058
East & South Europe	-8,604.3	(2,515.3)***	-0.163	-2,830.2	(1,948.1)	-0.033
South America, Africa, Oceania	-3,201.4	(2,344.3)	-0.055	-5,366.9	(1,791.0)**	-0.068
Asia & the Middle East	-4,544.6	(2,209.7)*	-0.117	-4,492.2	(1,717.2)**	-0.073
Field of study						
Liberal field	-8,670.7	(1,783.2)***	-0.155	-7,779.8	(1,190.8)***	-0.126
Commerce, management, business	-1,637.5	(1,837.8)	-0.030	-4,296.3	(1,320.0)***	-0.065
No specialization	-4,397.8	(1,790.7)*	-0.104	-4,791.1	(1,131.7)***	-0.102
Official languages proficiency	418.3	(195.3)*	0.073	217.5	(117.8)	0.039
Canadian work experience	1,243.1	(209.2)***	0.174	308.1	(46.3)***	0.129
Foreign work experience	-50.9	(70.0)	-0.023	-62.6	(86.4)	-0.015
Number of hours worked per week	458.9	(78.0)***	0.174	657.7	(46.7)***	0.241
Occupation						
Health, natural & applied sciences	4,280.2	(1,772.8)*	0.099	1,227.5	(1,111.8)	0.023
Sales & service occupations	-10,001.5	(1,652.3)***	-0.227	-11,835.0	(1,148.1)***	-0.207
Trades, transport, primary industry, manufacturing & utilities	-7,139.2	(1,769.0)***	-0.159	-7,997.4	(1,166.9)***	-0.152
Living in Toronto, Vancouver, Montreal	3,243.1	(1,715.7)	0.074	2,678.1	(947.9)**	0.056
Province of residence						
Quebec	-4,565.5	(1,739.2)**	-0.078	-7,321.4	(1,216.2)***	-0.103
Prairie (MB, AB, SK)	-735.2	(2,103.3)	-0.013	-2,878.3	(1,333.3)*	-0.041
British Columbia	-396.1	(1,481.5)	-0.008	-1,955.2	(1,049.6)	-0.032

Variables	Short- and Medium-term Immigrants			Long-term Immigrants		
	B	SE	β	B	SE	β
<i>Gender</i>	7,338.1	(1,178.6)***	0.186	12,391.3	(842.0)***	0.270
<i>Visible minority status</i>	-9,011.2	(1,907.3)***	-0.211	-3,142.2	(1,015.1)**	-0.069
<i>Group activities participation</i>	1,883.4	(1,186.5)	0.045	3,142.3	(769.2)***	0.067
<i>Mother's education</i>	335.3	(466.8)	0.027	837.4	(358.1)*	0.051
<i>Father's education</i>	417.0	(417.0)	0.038	-250.1	(293.1)	-0.018
<i>Spouse's education</i>	617.4	(270.5)*	0.070	1,486.6	(194.6)***	0.130
Adjusted R ²	0.431			0.423		

* Significant at $p < 0.05$; ** significant at $p < 0.01$; *** significant at $p < 0.001$.

Two other measures of education are included in the analysis, namely the field of study and, for immigrants the origin of degree. These variables offer an understanding of the different value of education in the Canadian labour market, depending on the type and place of schooling. For native-born, economic-related degrees are similarly valued to the applied-field degrees ($p > 0.05$), while for their foreign-born counterparts, the latter are slightly more valued ($B = -\$2,443$, $SE = 1,078$). If Canadian-born individuals with no specialization (which includes lack of postsecondary education) ($B = -\$4,259$, $SE = 880$) are more sanctioned than those with liberal field degrees ($B = -\$4,070$, $SE = 912$), the opposite is true for immigrants ($B = -\$4,227$, $-\$6,597$ respectively). This might suggest that immigrants with postsecondary liberal arts degrees might face a more acute devaluation of their degrees compared to other immigrants.

However, for immigrants, a more important issue is the difference in valorization of education depending on where the education was obtained. All dummy variables measuring origin of degree are significant, which shows that compared to degrees obtained in Western and Northern Europe and in Australia, all other degrees are less valued in the Canadian labour market, including Canadian degrees. East and South European degrees ($B = -\$3,909$, $SE = 1,527$), degrees from South America, Africa, or Oceania ($B = -\$4,242$, $SE = 1,437$), and degrees from Asia and the Middle East ($B = -\$5,441$, $SE = 1,343$) are increasingly less valued than degrees obtained in Canada ($B = -\$2,584$, $SE = 1,105$).

Besides education, work experience is another highly valued human capital characteristic. This study shows that indeed, for both Canadian- and foreign-born,

a one-year increase in Canadian work experience yields an increase in earnings of \$419 (SE=33) and \$467 (SE=36) respectively. However, immigrants' work experience prior to their arrival in Canada is not significant, which supports prior research documenting the lack of recognition of foreign work experience (Basran and Zong 1998). This might suggest that selecting immigrants based on the work experience obtained outside Canada might not be efficient, as this does not increase their economic performance in Canada.

Official languages proficiency, another valued human capital characteristic for immigrants, is also a significant predictor of earnings ($p < 0.01$). On a scale from 6 to 18, a one-unit increase in the use of English and/or French yields an increase in annual earnings of \$284 (SE=100).

Not surprisingly, earnings vary depending on occupation, with certain occupations being more generously remunerated than others (Krahn and Lowe 2002). This is also confirmed by this analysis. At the higher range are managerial occupations as well as health and science related occupations ($p > 0.05$). Compared to the managerial occupations, trades, transport, industry, and manufacturing occupations, and especially sales and service occupations yield significantly lower earnings ($p < 0.001$). This discrepancy is more pronounced for immigrants (B=-\$6,844, -\$11,255) than for native-born Canadians (B=-\$2,844, -\$7,567).

Earnings also vary depending on various socio-demographic variables. In this analysis, I control for the place of residence (both provincial and metropolitan distribution), gender, and visible minority status. Earnings tend to be higher for

people living in Toronto, Vancouver, or Montreal. However, the Canadian-born (B=\$4,604, SE=710) seem to benefit from this more than immigrants (B=\$2,053, SE=818). The native-born residents of Ontario have comparable earnings with those living in British Columbia ($p>0.05$), but earn significantly more than those residing in the prairie provinces (B=-\$2,637, SE=866), and especially more than Quebec residents (B=-\$6,079, SE=728). For immigrants, the pattern is similar, with the exception of British Columbia residents (B=-\$1,771, SE=863), who receive significantly lower earnings than immigrants living in Ontario.

For both native- and foreign-born, gender is a strong predictor of earnings (beta=0.181, 0.244). However, immigrant women tend to be more disadvantaged in the Canadian labour market compared to their native-born counterparts. Thus, while immigrant women earn \$11,016 (SE=687) less than immigrant men, native-born women earn \$7,867 (SE=691) less than Canadian-born men. This finding is consistent with prior research documenting the 'double jeopardy' of immigrant women (Boyd 1999, Fox and Fox 1987). Another disadvantaged group consists of immigrant visible minorities. Due to the low variability of the visible minority variable for the Canadian-born sample, it was not entered in the analysis for this population. Among immigrants however, visible minorities register a \$2,907 (SE=871) deficit compared to white immigrants.

This analysis also tests the income variance predictability of a series of social capital variables. Thus, participation in various group activities seems to offer individuals a valuable social capital. This resource is a stronger positive

predictor of earnings for immigrants ($B=\$2,896$, $SE=646$) than for non-immigrants ($B=\$1,711$, $SE=613$). However, as social capital is not the focus of this analysis, I do not differentiate between the types of group activities practiced. As such, we cannot claim that this positive effect of social capital on earnings originates in the ethnic attachment of individuals or outside their ethnic community. Nevertheless, further studies might find the EDS an appropriate dataset to investigate the sources of immigrants' social capital and its impact on their economic performance.

Along with non-familial network, the family is a possible social capital resource, whose effect varies depending on the socio-economic location of its members (Li 2004). In this study I use mother, father, and spouse's highest level of schooling as proxy measures of this dimension of social capital. The analysis shows that spouse's education is a significant predictor for both immigrants ($B=\$1,177$, $SE=158$) and non-immigrants ($B=\$1,499$, $SE=161$). However, while parents' education is insignificant for Canadian-born ($p>0.05$), for immigrants only mother's education is a significant predictor of earnings ($B=\$849$, $SE=287$).

In the following section, I discuss the results of the analyses comparing between immigrant groups, namely between short- and medium-term immigrants, and long-term immigrants. This analysis is meant to control for the period of time elapsed since their arrival to Canada. Given that the predictors of the economic performance of immigrants have already been discussed, in the next section I focus on the differences between the experiences of the two immigrant groups.

4.3.2 Short- and medium-term immigrants and long-term immigrants' economic performance

In this section I examine the results of the analysis on income from earnings for two immigrant groups separated based on period of immigration: immigrants who arrived to Canada less than 10 years previously, and those who have been living in Canada for 10 years or more (see Table 10). The comparison of human capital predictors shows that LT immigrants seem to have an experience similar with that of native-born. Thus, if for SMT immigrants, Canadian work experience ($\beta=0.174$) is more important than education ($\beta=0.164$), the opposite is true for LT immigrants ($\beta=0.129, 0.176$). Given that work experience is also a proxy of the time spent in Canada, this might indicate that in their first years in Canada immigrants' earnings increase considerably compared to their initial earnings. This finding offers an optimistic perspective of the labour market experience of newcomers, as it might suggest that the substantial earnings deficit experienced by immigrants in the beginning decreases with time in Canada. Thus, a one-unit increase in work experience yields an increase in earnings of \$1,243 ($SE=209$) for SMT immigrants and only \$308 ($SE=46$) for LT immigrants. The high valorization of Canadian work experience contrasts with the low value of foreign work experience that is not significant for either immigrant group ($p>0.05$).

Another important difference between SMT and LT immigrants rests in the economic value attributed to their education. Immigrants living in Canada for more than 10 years receive a \$1,195 ($SE=167$) return to each year of education,

while more recent immigrants receive only \$869 (SE=214). And while for both immigrant groups, the place where the credential was obtained affects earnings, there are differences in the value attributed to degrees of various origins.

Degrees obtained in Western and Northern Europe and in Australia are the most valued for both immigrant groups. Canadian degrees are substantially less valued for SMT immigrants (B=-\$8,220, SE=2,469) than for LT immigrants (B=-\$2,651, SE=1,333). This might suggest that obtaining a Canadian degree represents an investment that is capitalized on the long-term rather than in the first years after obtaining the degree. For SMT immigrants degrees obtained in South or Eastern Europe are the least valued (B=-\$8,604, SE=2,515), followed by the degrees obtained in Asia or the Middle East (B=-\$4,545, SE=2,210), while credentials obtained in Africa, South America and other territories are not valued ($p>0.05$) significantly different from the reference category. For LT immigrants, West and East European degrees seem to be valued similarly ($p>0.05$). However, degrees from Asia or the Middle East (B=-\$4,492, SE=1,717) and especially those from South America and Africa (B=-\$5,367, SE=1,791) are valued significantly different from degrees obtained in Western and Northern Europe and in Australia. A better understanding of the value attributed to foreign degrees in the Canadian labour market will be offered in the subsequent section.

A third measure of education used is the field of study. The main difference in the valorization of degrees with various specializations between immigrant groups lies in the value attributed to economic-related degrees. While for SMT immigrants these degrees are similarly valued as applied field degrees, for LT

immigrants they are less valued ($B=-\$4,296$, $SE=1,320$). This might be an indication that new immigrants specialized in applied and economic fields have an advantage compared to newcomers specialized in liberal fields or with no specialization.

Besides education and work experience, official languages proficiency is another significant human capital predictor of earnings for both immigrant groups. As expected, a higher knowledge of English and/or French is more important for STM immigrants than for LT immigrants. Thus, while a one-unit increase in the use of official languages results in an increase in earnings of \$418 ($SE=195$) for more recent immigrants, and of \$218 ($SE=118$) for LT immigrants. This is because, as shown by the univariate analysis, more recent immigrants register lower scores on the language index compared to their counterparts.

SMT and LT immigrants register different earnings for the same occupational categories. Trades, transport, industry, and manufacturing occupations, and especially sales and service occupations register significantly lower earnings for both immigrant groups. However, while for LT immigrants health and science related occupations yield similar earnings with managerial occupations ($p>0.05$, $B=\$1,228$, $SE=1,112$), for SMT immigrants they are better valued ($B=\$4,280$, $SE=1,773$).

There are differences between immigrant groups with respect to the impact of various socio-demographic variables. SMT immigrants living in Toronto, Montreal, or Vancouver earn similar earnings with those who do not ($p>0.05$). However, there is a significant difference in the earnings registered by LT

immigrants depending on the place of residence, with those living in Toronto, Montreal, or Vancouver earning \$2,678 (SE=948) more than those living elsewhere. Similarly, for SMT immigrants with the exception of those living in Quebec, which are significantly less economically rewarded than in Ontario (B=-\$4,566, SE=1,739), living in any other Canadian province results in similar earnings ($p>0.05$). For LT immigrants, while Ontario and British Columbia residence affect earnings similarly ($p>0.05$), residents of the Prairie Provinces (B=-\$2,878, SE=1,333) and especially of Quebec (B=-\$7,321, SE=1,216) register significantly lower earnings than those living in Ontario.

For both SMT and LT immigrants, gender is one of the strongest predictors of earnings (beta=0.186, 0.270). Immigrant women living in Canada for more than 10 years are even more disadvantaged than their more recent counterparts. Thus, while LT immigrant women earn with \$12,391 (SE=842) less than LT immigrant men, SMT immigrant women earn with \$7,338 (SE=1,177) less than SMT immigrant men. This might suggest further differences between the characteristics of LT and SMT immigrant women.

While immigrant women seem to improve their economic success in time, visible minorities seem to be more vulnerable. Compared to white immigrants, visible minorities register earnings lower with \$9,011 (SE=1,907) if living in Canada for less than 10 years and with \$3,142 (SE=1,015) if living in Canada for more than 10 years. This is indicative of a more severe form of labour market discrimination among visible minority immigrants.

There are also differences in how SMT and LT immigrants utilize their social capital. While participation in various group activities seems to offer LT immigrants an increase in annual earnings of \$3,142 (SE=769), this variable is not statistically significant for SMT immigrants ($p>0.05$). An analysis of the types of group activities preferred by each immigrant group might explain this difference. Further studies could try to answer this question and thus contribute to the literature debating on whether or not ethnic attachment is an enabling factor of immigrants' economic success (Li 2004). Similarly, immigrants living in Canada for more than 10 years seem to utilize their family's social capital better than newcomers. With the exception of father's education, which is insignificant for both immigrant groups ($p>0.05$), LT immigrants benefit from higher levels of both mother and spouse's education, while for SMT immigrants only spouse's education positively affects earnings. Moreover, a one-unit increase in spouse's education yields an increase in annual earnings of \$617 (SE=271) for more recent immigrants, compared to \$1,487 (SE=195) for immigrants living in Canada for more than 10 years.

To summarize the main findings from Tables 9 and 10, human capital characteristics are statistically significant and strong predictors. However, there are differences between the returns to human capital depending on immigrant status and stage of integration. For all immigrants and SMT immigrants, Canadian work experience is a stronger predictor than education; the opposite is true however for the Canadian-born and LT immigrants. Moreover, for all immigrant groups, foreign work experience is not a statistically significant predictor of income. While

official languages proficiency positively affects immigrants' income, this is particularly important for SMT immigrants. Social networks represent a source of capital, especially for Canadian-born and LT immigrants. Income also varies depending on place of residence, in terms of both province and city of residence. There is evidence of gender and racial economic discrimination. However, while for women, the situation seems to be improving over time, for visible minorities, the disadvantage is increasing for more recent immigrants.

In this study, it is hypothesized that the relationship between education and income is moderated by origin of the degree, and that this varies depending on the period of immigration. In the following section, I discuss the results of the regression analyses performed to examine whether education and origin of degree interact in predicting income. The analyses are conducted for three populations: all immigrants, short- and medium-term immigrants, and long-term immigrants.

4.3.3 Discussion of interaction terms analyses for all immigrants, short- and medium-term immigrants, and long-term immigrants

Table 11 summarizes the results of the regression analyses, which along with the previously discussed independent variables include the interaction terms of education and origin of degree. Four two-way interaction terms are computed by multiplying the 'highest level of schooling' with each of the included 'origin of degree' dummy variables.

The coefficients of only a few variables register significant changes compared to the results presented in Tables 9 and 10. For all immigrants, foreign

Table 11. Unstandardized and standardized regression coefficients for predictor variables on income, all immigrants, short- and medium-term immigrants, and long-term immigrants sample

Variables	All Immigrants			Short- and Medium-term Immigrants			Long-term Immigrants		
	B	SE	β	B	SE	β	B	SE	β
Intercept	-19,536.3	(5,559.3)***		-13,652.7	(11,544.8)		-19,897.7	(6765.7)**	
Education	1,560.5	(312.9)***	0.243	1,526.0	(587.1)*	0.289	1,940.4	(394.5)***	0.286
Origin of degree									
Canada	-5,459.6	(5,617.1)	-0.121	-9,963.7	(14,540.1)	-0.159	4,735.1	(6669.1)	0.103
East & South Europe	12,629.5	(6,123.3)*	0.169	17,708.6	(12,665.9)	0.335	15,189.9	(7441.8)*	0.180
South America, Africa, Oceania	4,928.3	(6,852.1)	0.067	-633.5	(13,244.0)	-0.011	16,606.9	(8470.2)*	0.210
Asia & the Middle East	12,907.8	(6,260.0)*	0.247	9,583.6	(12,366.1)	0.246	20,512.2	(7914.9)**	0.333
Field of study									
Liberal field	-7,632.9	(990.6)***	-0.124	-8,758.3	(1,777.6)***	-0.156	-8,479.4	(1197.4)***	-0.137
Commerce, management, business	-3,038.7	(1,074.6)**	-0.047	-2,010.8	(1,830.1)	-0.037	-4,472.6	(1319.3)***	-0.068
No specialization	-5,145.3	(971.7)***	-0.110	-4,900.0	(1,841.2)**	-0.115	-5,673.2	(1151.4)***	-0.120
Official languages proficiency	317.0	(99.5)***	0.059	476.3	(195.9)*	0.083	234.9	(117.8)*	0.042
Canadian work experience	461.6	(35.8)***	0.223	1,226.6	(210.5)***	0.172	310.1	(46.5)***	0.130
Foreign work experience	-136.0	(59.6)*	-0.042	-47.7	(71.9)	-0.021	-122.5	(87.5)	-0.029
Number of hours worked per week	654.9	(41.6)***	0.228	431.3	(78.1)***	0.164	638.8	(47.0)***	0.234
Occupation									
Health, natural & applied sciences	1,251.4	(934.7)	0.024	3,629.8	(1,788.5)*	0.084	955.8	(1,109.5)	0.018
Sales & service occupations	-10,975.0	(935.7)***	-0.202	-9,983.8	(1,648.1)***	-0.227	-11,681.1	(1,145.2)***	-0.204
Trades, transport, primary industry, manufacturing, utilities	-7,110.5	(965.2)***	-0.138	-7,407.7	(1,787.9)***	-0.165	-8,147.7	(1,164.3)***	-0.155

Variables	All Immigrants			Short- and Medium-term Immigrants			Long-term Immigrants		
	B	SE	β	B	SE	β	B	SE	β
<i>Living in Toronto, Vancouver, Montreal</i>	1,877.4	(814.8)*	0.040	3,459.3	(1,721.2)*	0.079	2,575.2	(945.8)**	0.054
<i>Province of residence</i>									
Quebec	-6,745.5	(994.7)***	-0.097	-4,320.0	(1,732.0)*	-0.074	-7,435.1	(1,214.9)***	-0.104
Prairie (MB, AB, SK)	-2,999.1	(1103.8)**	-0.045	-449.7	(2,101.7)	-0.008	-2,806.7	(1,328.5)*	-0.040
British Columbia	-1,999.6	(859.6)*	-0.033	-710.7	(1,498.5)	-0.014	-2,049.9	(1,047.2)*	-0.033
<i>Gender</i>	10,903.5	(683.5)***	0.242	7,341.2	(1,178.0)***	0.187	12,231.7	(842.9)***	0.266
<i>Visible minority status</i>	-3,605.8	(876.6)***	-0.080	-9,103.1	(1,903.2)***	-0.213	-3,688.0	(1,020.3)***	-0.080
<i>Group activities participation</i>	2,534.0	(644.2)***	0.055	1,239.0	(1193.9)	0.030	2,999.9	(769.0)***	0.064
<i>Mother's education</i>	811.5	(285.3)**	0.052	368.1	(465.4)	0.029	795.3	(357.0)*	0.048
<i>Father's education</i>	44.6	(239.5)	0.003	465.3	(417.4)	0.042	-236.9	(292.1)	-0.017
<i>Spouse's education</i>	1,258.3	(157.8)***	0.116	614.8	(273.7)*	0.069	1,532.0	(194.1)***	0.134
<i>Education x Canadian degree</i>	237.6	(348.9)	0.081	182.8	(836.1)	0.048	-455.1	(426.6)	-0.154
<i>Education x East, South Europe degree</i>	-1,137.3	(387.8)**	-0.216	-1,574.0	(713.0)*	-0.487	-1,262.2	(508.2)*	-0.188
<i>Education x South America, Africa, Oceania degree</i>	-537.8	(438.3)	-0.103	-29.3	(766.5)	-0.008	-1,469.5	(568.7)**	-0.253
<i>Education x Asia, Middle East degree</i>	-1,173.2	(383.2)**	-0.333	-805.2	(688.7)	-0.325	-1,661.9	(511.6)***	-0.381
Adjusted R ²	0.452			0.438			0.428		

* Significant at $p < 0.05$; ** significant at $p < 0.01$; *** significant at $p < 0.001$.

Figure 1. Interaction term: education by origin of degree, all immigrants

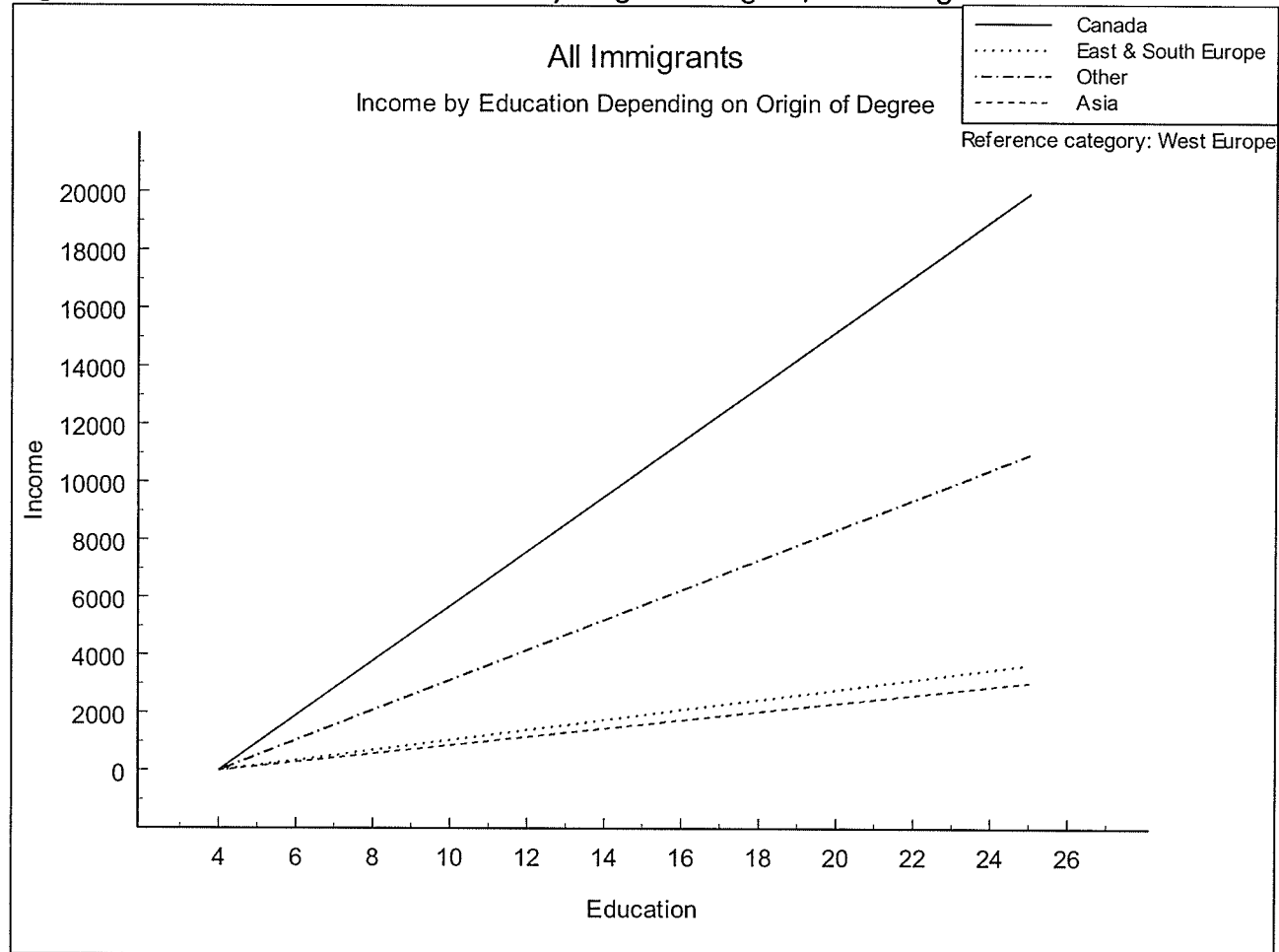
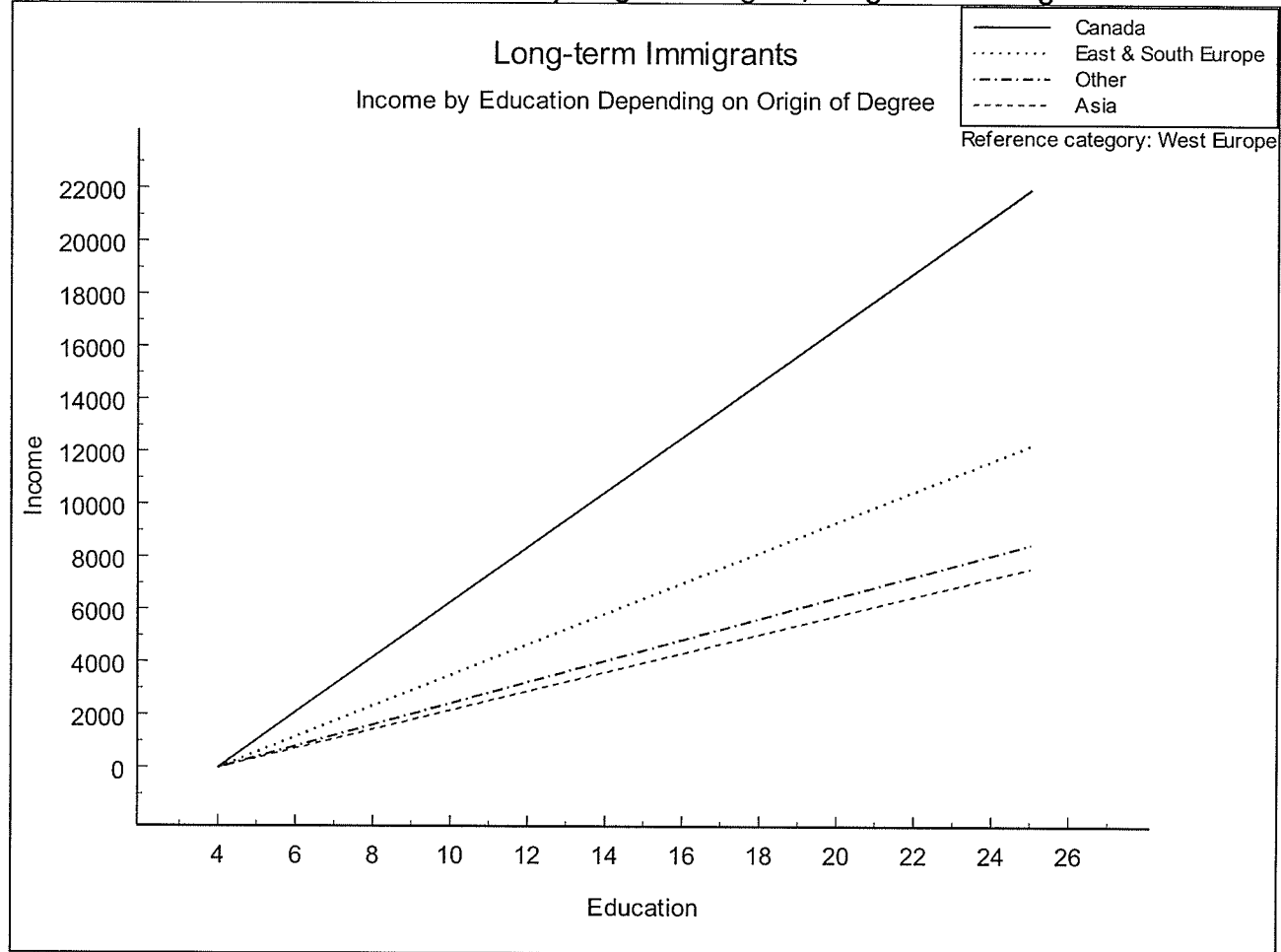


Figure 2. Interaction term: education by origin of degree, long-term immigrants



work experience becomes statistically significant, and indicates that those with greater foreign work experience are more disadvantaged in the Canadian labour market. This might be due to the fact that an extensive foreign work experience is an indicator of a higher age at immigration, which has been shown to be negatively associated with earnings (see section 4.2). For SMT immigrants, after including the interaction terms in the regression analysis, living in Toronto, Vancouver, or Montreal becomes statistically significant, and yields a \$3,459 (SE=1,721) increase in annual earnings, which is higher than for LT immigrants. This might suggest that the documented newcomers' tendency to move to one of these three cities might be appropriate. For LT immigrants, the dummy variable measuring British Columbia residence becomes significant and indicates that for immigrants living in Canada for more than 10 years residing in British Columbia is less efficient than residing in Ontario (B=-\$2,050, SE=1,047).

For all immigrants and LT immigrants, I plot the slopes (unstandardized regression coefficients) to better understand how origin of degree moderates the relationship between education and income. For SMT immigrants, the slopes are not plotted, as only one interaction term is significant²⁷. Figures 1 and 2 represent earnings as a function of education. In each figure, the four slopes illustrate income as a function of education for four types of degrees: Canadian degrees, degrees obtained in East and South Europe, degrees from Africa, South and Central America and other territories, and degrees from Asia and the Middle East. The reference category is the slope measuring income as a function of education

²⁷ Plotting insignificant interaction terms would only result in a meaningless graph.

for degrees obtained in Western and Northern Europe and Australia and is not represented on the graph. However, for each of the three populations, this slope is not statistically different from that of Canadian degrees. Basically, the graphs indicate that earnings change with the level of education, but this relationship is moderated by the origin of degree.

For all immigrants, only two interaction terms are significant and suggest that for East and South European degree holders and especially for those with Asian degrees, education positively affects earnings to a lesser extent compared to those with degrees from Western Europe. These results become clearer when the analysis is performed for immigrants living in Canada over different stages of integration²⁸. This might suggest that the analysis of the valorization of foreign credentials in the Canadian labour market should not be performed for all immigrants, but for immigrant populations separated by period of immigration.

For immigrants living in Canada for less than 10 years, education affects earnings similarly, regardless of the origin of degree. The exception is the slope measuring degrees obtained in East and South Europe, for which a higher level of education affects earnings less than it would had the degree been obtained in Western Europe. This might suggest that in the first years in Canada, immigrants' earnings are more affected by the lack of Canadian work experience and the low

²⁸ In the multivariate analysis, I do not control for the effect of age, due to the multicollinearity between age and work experience. This must be taken into account when interpreting the integration effect influencing the devalorization of foreign credentials, because age might be an important confounding factor of the differences between SMT and LT immigrants.

proficiency of English and/or French than of the different valorization of educational credentials.

However, these differences become more acute in time. For LT immigrants, while degrees obtained in Western and Northern Europe and in Australia are similarly valued as Canadian degrees, other degrees are devalued. Thus, education positively affects earnings to a lesser extent if the degree is obtained in East and South Europe, in South America, Africa and other territories, and especially in Asia and the Middle East. I argue that the value attributed to various foreign degrees can be better measured for LT immigrants, because after living in Canada for more than 10 years, immigrants share a more similar labour market experience. By that time, immigrants might have acquired a Canadian degree, achieved a satisfactory level of knowledge of the official languages, surpassed the disadvantage of not having Canadian work experience, and capitalized the social network developed in Canada and their familial social capital. In other words, immigrants living in Canada for more than 10 years might be considered settled in Canada, adjusted to the Canadian lifestyle and the labour market, and having maximized their resources in terms of economic success. Further studies based on datasets with larger samples might shed more light to the relevance of studying the valorization of foreign credentials in the Canadian labour market on various immigrant populations distinguished by the period of time spent in Canada rather than on the entire immigrant population.

4.4 Discussion

In the remainder of this chapter, I discuss the main findings. First, I examine their significance from a theoretical standpoint, second, I look at how they integrate in the prior immigration research, and third, I discuss some of the main policy implications of the findings.

4.4.1 Discussion of theoretical implications

The present study tests human capital theory and indirectly, the current 'point system' used to select immigrants to Canada. Some of the results support human capital theory, and other results question it. Other findings are interpreted with the help of other theories of economic performance (i.e. social capital theory, screening hypothesis, labour market segmentation theories).

On one hand, results confirm human capital theory, as the human capital predictors (i.e. education, Canadian work experience, official languages proficiency) are statistically significant and strong predictors of earnings for both immigrants and non-immigrants. On the other hand, when comparing between various human capital characteristics, an interesting finding is that for immigrants, and especially for immigrants living in Canada for less than 10 years, Canadian work experience is more important than education in terms of its influence on earnings. In this regard, the primacy of education for immigrants must be questioned by human capital theory. In other words, human capital theory does not work the same way for immigrants as it does for the Canadian-born.

Moreover, the finding that foreign work experience is not recognized in the Canadian labour market further questions the applicability of human capital

theory, which claims that experience is an important human capital characteristic. As a result, it cannot explain why it is not valued in the Canadian labour market, while Canadian work experience is strongly rewarded. At best, the theory should be modified to include measures of 'origin of work experience' given a national economy's preference for workers with experience within the national labour force. Various labour market segmentation theories advance an explanation of why foreign work experience is not recognized in Canada. According to split labour market theory, the lack of recognition of foreign work experience is a mechanism used by Canadian-born (high-priced labour) to maintain their current vantage position, and thus minimize the use of immigrant labour (cheap labour) (Bonacich 1979). Labour market shelters theory claims that professional associations do not recognize foreign work experience, as a method directed at denying access to immigrant applicants and thus reserving privileged positions to Canadian-born. Some Canadian researchers have documented this claim using both immigrants' reports (Basran and Zong 1998) and examples of occupational associations' assessment practices (Bauder 2003, Krahn et al. 2000, McDade 1988), so it is not surprising to have these results confirmed here.

The analysis also shows that the value attributed to education in the Canadian labour market varies depending on the level of education, but also on the field of specialization and place of education. Human capital theory measures education only by the number of years of schooling and does not explain why variables like field of study and origin of education are significant predictors of earnings. Therefore, this finding questions human capital theory and offers

support to screening hypothesis, which argues for a more nuanced and complex measure of education. Screening hypothesis claims that it is credentials, not the knowledge obtained in the educational system that get the job, and while a series of job applicants can have the same level of education, their credentials can be valued differently, depending on, among other things, the prestige of the school and of the country where the degree was attained. In assessing the value of a degree from outside Canada, employers also face genuine difficulties, due to the lack of resources and information on the quality of education in the respective country. Using interviews with employers, Berg (1970) has challenged the link between productivity and educational credentials. However, a qualitative study of how employers assess degrees depending on the country where it was attained is yet to come. Regardless of the origin of the problem, it does matter where immigrants obtain their education just as much as it matters what field they choose to study. In these regards, human capital theory fails to explain why these forces influence income.

Furthermore, human capital theory cannot explain gender and racial discrimination, one of the most consistent criticisms of this theory (Krahn and Lowe 2002, Marginson 1997, McBride 2000). The theory's claim that the labour market is competitive and fair leaves little room for the earnings differential existing between males and females, and between whites and visible minorities. A number of competing theories can offer more detailed explanations of inequality. Labour market segmentation theories focus on the discrimination experienced in the labour market by immigrants, women, and visible minorities. Dual labour market

theory explains the economic discrimination against these groups by the segmentation of the labour market and their concentration in the secondary labour market. Split labour market theory is particularly concerned with racial economic discrimination. According to this theory, the current discrimination experienced by non-whites is rooted in the historical differences between whites as 'high-priced labour' and non-whites as 'cheap labour' and its solution lies in the mechanism of the price of labour. Skinner (1995) exemplifies the segmentation of the labour market with the "high rates of black male joblessness" from large United States cities. The results of the present study further confirm these observations, by showing that there is gender and racial discrimination in the Canadian labour market.

The analysis also shows that social capital is relevant to the economic performance of immigrants and non-immigrants. Social capital was measured by the participation in various group activities and the level of education of the mother, father, and spouse. This finding further questions the validity of human theory and supports social capital theory, or at least suggests that elements of both theories need to be considered. It is not only the education of the individual that matters; it is also the education of those in the social networks that influence labour market performance. However, it should be noted that the analysis of the impact of social capital on economic performance is minimal, and should be interpreted accordingly. For example, I do not distinguish between the various sources of social capital (i.e. presence of ethnic community, socioeconomic status

of neighbourhood, family characteristics, contact with mainstream society). These must be left for future studies.

I now examine the relevance of the findings of the present study to immigration research, some of its debates and documented predictors of economic performance.

4.4.2 Discussion of implications to immigration literature

Researchers debate whether the human capital of recent immigrants is lower (Bloom, Grenier and Gunderson 1995; Borjas 1985, 1988; Coulson and DeVoretz 1993) or higher (Akbari 1999, Li 2003a) than that of earlier immigrants. The present study shows that immigrants who arrived in Canada less than 10 years ago are more educated and have more foreign work experience than immigrants living in Canada for 10 years or more. Therefore, their significant lower economic performance cannot be interpreted as a result of their lower 'quality,' namely their lower human capital. As a result, this study suggests that there is something else going on, primarily a change in the way the Canadian labour market values foreign-acquired education. Today, it appears that employers value Canadian education more than they did in previous decades.

Another important component of this analysis is the study of the value of foreign credentials in the Canadian labour market. While their devaluation has been documented by previous research (Adamuti-Trache and Sweet 2005; Bauder 2003; Basran and Zong 1998; deSilva 1992; Li 2001; McDade 1988; Pendakur 2000; Rajagopal 1990; Wanner 1998), the present study proposes a methodological change in the study of foreign credentials. Thus, comparing the

results obtained from three separate analyses performed for all immigrants, SMT immigrants, and LT immigrants suggests that the value attributed to credentials depending on their origin can be more easily studied for LT immigrants (who lived in Canada for 10 years or more). Analyzing the value of foreign credentials for all immigrants, without differentiating between various stages of integration might suppress the actual differences. Since the present study suggests this does occur, it is an indication that further studies should account for stage of integration as well. This finding offers an explanation for the mixed results of current Canadian research on foreign credentials recognition, because studies of the value of foreign education in the Canadian labour market that obtained inconclusive results have used samples of short- and medium-term immigrants only (Aydemir and Skuterud 2004, deSilva 1997).

This study also contributes to the debate of whether or not certain minorities experience economic discrimination in the Canadian labour market. Results offer support to previous research documenting gender and racial discrimination and provide additional information. Gender discrimination is studied for all four populations under study. Results are similar to those of studies documenting the 'double jeopardy' experienced by immigrant women in Canada (Boyd 1985; Li 2000, 2001, 2003a). However, it seems that this applies mainly to immigrant women living in Canada for 10 years or more, while for more recent immigrant women, the earnings differential is similar to that experienced by Canadian-born women. This finding is particularly important, as it suggests that the economic situation of immigrant women is improving (Wilkinson et al. 2006).

The situation of immigrant visible minorities is different. Because of sample size constraints, racial discrimination is examined for immigrant groups only. Results show that among immigrants, visible minorities have lower earnings than whites, after controlling for various human capital variables. This is consistent with prior research documenting the economic situation of immigrant visible minorities (Boyd 1985; Kazemipur and Halli 2001a; Li 2000, 2001, 2003a; Pendakur 2000). Moreover, the earnings gap between whites and non-whites seems to be widening, as suggested by the higher disadvantage registered by SMT immigrants compared to LT immigrants. This might be an indication that racial economic discrimination is becoming more acute.

4.4.3 Discussion of policy implications

Along with the above-mentioned implications to various theories of economic performance and Canadian immigration literature, the findings of the present study has implications to the current 'point system' used to select skilled immigrants to Canada. Thus, the analysis suggests that criteria such as education and knowledge of official languages are appropriate in considering selected immigrants and their future success in the Canadian labour market. However, the effectiveness of selecting immigrants with high education requires further discussion. Immigrants' education positively affects their earnings to a lesser extent than the work experience they acquire in Canada. Moreover, the finding that foreign education is less valued than Canadian education questions the importance attributed to education by the 'point system'. The government might want to reconsider the number of points allocated to education. Similarly, foreign

work experience is not valued in the Canadian labour market, which indicates that selecting immigrants based on this criterion is inefficient, so the government might consider removing this criteria from the selection process.

The analysis also brings support to the belief that familial and social networks represent a form of capital that positively influences economic performance. However, a better understanding of the effect on earnings of the various social capital components (i.e. attachment to family, ethnic community, neighbourhood, and mainstream society) might be of help in the future development of the 'point system'. For example, such research might indicate that having ties to a certain ethnic community might translate in future support and, thus should be attributed 'points' when applying for immigration to Canada. Alternatively, it might suggest that government investment in ethnocultural communities is a worthwhile strategy for ensuring labour market success among new immigrants. It may also question the government's new initiative of redistributing immigrants throughout Canada's second and third tier cities. Cities which lack sizable ethnocultural communities may not be appropriate places to settle newcomers. However, given the poor quality of this variable (residing or not in Toronto, Vancouver, or Montreal), more research on the effect of ethnocultural community on labour market performance is needed.

The present study shows concern for the economic situation of visible minorities in Canada. Visible minorities represent the large majority of recent immigrants to Canada (Belanger and Malenfant 2005). Immigrants tend to concentrate in large cities, and especially in Toronto, Vancouver, and Montreal

(Hum and Simpson 2004). This has resulted in a high concentration of visible minorities in the main Canadian metropolitan centres, which has affected the social cohesion of these cities. Moreover, these cities experience various problems that are attributed to the high concentration of immigrants, and especially of visible minorities. In this situation, the perception of visible minorities can be worsening and thus affect their economic performance. This calls for social transformation measures (Li 2003b), to facilitate the integration of new immigrants, and especially of visible minorities who are particularly targeted.

The present chapter has discussed the main findings of the study. The first three sections outlined the results of the univariate, bivariate, and multivariate analysis. The last section of the chapter has examined the main implications of the findings to various theories of economic performance, immigration literature, and immigration policy.

Chapter Five: Conclusion

This concluding chapter consists of three sections. The first section is a review of the main findings, the second section examines some of the policy implications of the study, and the last section discusses possible advice for future research.

5.1 Review of findings

The present study has addressed the following research questions: (1) To what extent does education influence economic performance of immigrants in the Canadian labour market?, 2) How does the effect of education on earnings change depending on the origin of education?, and (3) How does the relationship between education, origin of degree, and income change for the following populations: a) total immigrant population; b) short- and medium-term immigrant population; and c) long-term immigrant population?.

The analysis performed indicates that for all four populations under study (i.e. Canadian-born, all immigrants, SMT immigrants, LT immigrants), education is an important predictor of earnings. However, education interacts with both immigrant status and stage of integration, as the Canadian-born have higher returns to education than immigrants, and foreign-born individuals living in Canada for 10 years or more have higher returns than more recent immigrants. Moreover, while for Canadian-born and LT immigrants, education has a stronger impact on earnings than work experience, for all and SMT immigrants the situation is reversed.

For immigrants, the origin of the degree moderates the positive relationship between education and earnings, but this significantly differs depending on the

stage of integration. Thus, for SMT immigrants, three out of four interaction terms of origin of education and level of education are insignificant, suggesting that the impact of education on SMT immigrants' earnings does not depend on where their credential was attained. However, the devaluation of foreign degrees is a significant detriment for immigrants living in Canada for more than 10 years. This finding adds to the current understanding of the devaluation of foreign credentials in Canada.

For LT immigrants, degrees obtained in the US, Western and Northern Europe, and Australia are similarly valued as Canadian degrees. However, education positively affects immigrants' earnings to a lesser extent if their degrees are obtained in East and South Europe, and especially in South America, Africa, Oceania, and in Asia and the Middle East. Therefore, the degrees that face the most acute devaluation are those from developing countries, whose residents are also mostly visible minorities, which confirms prior research documenting that foreign degrees are particularly devalued for non-whites (Basran and Zong 1998, Li 2003b, Rajagopal 1990). This might indicate that the devaluation of foreign education is another mechanism of discrimination against visible minorities and linguistic minority groups. A more thorough investigation of the reasons for this distinction is needed.

In discussing immigrants' assimilation in the Canadian labour market, researchers distinguish between entry effects, assimilation effects, and cohort effects (Bloom, Grenier and Gunderson 1995; Borjas 1985, 1988). This means that the perfect data for studying immigrants' economic integration is longitudinal,

because it allows studying the same immigrant cohort at various stages of immigration, including the pre-migration stage²⁹. The present study is performed on cross-sectional data and does not permit such distinctions. Therefore, performing separate analyses for immigrants living in Canada for less than 10 years, and for those who immigrated more than 10 years previously represents a distinction between two immigrant cohorts, and excludes the pre-migration cohort. However, we cannot ignore that the two groups are at different stages of integration. Hence, in interpreting the differences between SMT and LT immigrants we cannot determine whether they are the result of the difference in integration or of the difference between the two immigrant cohorts, but rather that they are a combination of both. The analysis shows that compared to LT immigrants, SMT immigrants register higher returns for their Canadian work experience and proficiency of official languages, and lower returns for their education. These findings suggest that immigrants living in Canada for 10 years or more tend to be assimilated, in the sense that their labour market experience is similar with that of Canadian-born. Wilkinson et al. (2006) draw similar conclusions from their analysis of the economic integration of Canadian and American women.

The present study has an important application to human capital theory in the immigration context. Human capital characteristics such as education, Canadian work experience, and official languages proficiency are significant and strong predictors of earnings for both immigrants and non-immigrants. At the

²⁹ An investigation of pre-migration intentions is not possible as the intention to migrate differs from individual to individual. As well, while many may want to immigrate, many never follow through.

same time, foreign work experience is not recognized in the Canadian labour market, the effect of education on earnings is moderated by the origin of education, and results show proof of gender and racial economic discrimination. The analysis shows that while human capital theory is still an important theoretical framework in the study of immigrants' economic performance, it has important limitations. Other theories such as social capital theory, screening hypothesis, and various labour market segmentation theories can offer alternative interpretative frameworks for these results.

5.2 Policy implications

The above-mentioned results have important policy implications. One of the main issues is the relevance of the 'point system' used to select immigrants to Canada. According to the current 'point system,' a total of 67 out of 100 points is necessary to qualify as a skilled worker. The characteristics awarded with the highest points are level of education (up to 37 percent), knowledge of English and/or French (up to 35 percent), and work experience (up to 31 percent). Age, arranged employment in Canada, and adaptability (i.e. spouse's education, one year of full-time employment in Canada, two years of full-time post-secondary study in Canada, arranged employment, and/or family relationship in Canada), each accounts for maximum 10 percent of the necessary points.

Some of the results reinforce the current selection criteria, and other results question them. For example, criteria such as level of education and knowledge of official languages are shown to be economically efficient. However, while foreign education positively affects future earnings, the return to foreign education is lower

than the return to domestic education, especially for visible minorities. Moreover, the work experience immigrants acquire in Canada is more important than their level of education in terms of effect on earnings. Furthermore, while immigrants receive points for their work experience obtained in the country of origin, this does not positively influence their economic performance in Canada. These findings could be used to improve the current 'point system'. Instead of using theoretical criteria (i.e. based on human capital theory), such findings documented by most Canadian immigration research can aid in developing more realistic and efficient criteria. This is not to say that education and work experience should not be maintained as criteria for selecting immigrants to Canada, but rather that the devaluation of foreign education and the lack of recognition of foreign work experience should be acknowledged.

However, maybe even more important having economically efficient criteria for selecting immigrants to Canada is the need of social management of the immigrant population living in Canada. Below I address some of the measures that policymakers should be concerned with. This includes the need to develop a comprehensive centralized mechanism of assessing foreign credentials, to address the realities of gender and racial economic discrimination, and to improve the existing official languages training services.

The devaluation of foreign credentials should be recognized as an issue with extremely serious negative effects, especially in the case of some professions (i.e. medical professions, lawyers, teachers). This problem needs to be addressed not only in the interest of immigrants, but also in the interest of the Canadian

economy, which thus registers an important loss of human capital. For regulated occupations, the issue varies from lack of assessment (i.e. dentistry), to assessment and requirement to take further courses (i.e. nursing), or to assessment and possible recognition of the foreign degree (i.e. chemical technology). Or, like in the case of the College of Physicians and Surgeons, the right to practice might require a period of residency, "while no residencies in hospitals may be open to foreign doctors" (Krahn et al. 2000). Faced with this situation, various researchers have argued for the introduction of a federal mechanism of assessing foreign credentials, using objective criteria. Currently, efforts are underway to develop such a system. We can only hope that if this will happen, this system will be developed with the purpose of assessing degrees in order to allow the right to practice, rather than in order to restrict the right to practice.

While results show that for LT immigrants, most foreign credentials are devalued in the Canadian labour market, they do not indicate whether this devaluation is a result of the perceived or actual value of the credential. A federal mechanism of assessing foreign credentials would resolve much of this problem, because it would allow distinguishing facts from fiction. Moreover, foreign credentials are devalued at various levels: by employers, by professional associations, and in the educational system. This analysis does not allow differentiating between these various sources of devaluation, due to lack of the necessary data. A federal mechanism of assessing foreign credentials, whose assessment would be above that conducted formally by educational institutions

and professional associations, and informally by employers, would result in agreed-upon evaluations at all levels.

The present study provides further evidence that women and visible minorities are discriminated against in the Canadian labour market. While for immigrant women, the situation seems to be improving in time, for visible minorities it is quite the opposite. A wider understanding of the mechanisms of discrimination against these groups is needed. Furthermore, distinguishing between visible minority groups is of equal importance, in order to identify the groups that face the more acute disadvantage. The matter of gender and racial economic discrimination should be a source of constant concern for Canadian policymakers, as this goes against the premise of a meritocratic and multicultural Canadian society. Currently this situation is addressed by the Employment Equity Program. However, the mere existence of this program should not be expected to solve the situation, given its limited application. Despite its over twenty-year history, few studies have discovered any large-scale benefits to this program.

The high relevance of official languages proficiency to immigrants' economic performance in the Canadian labour market is reiterated by this study. The Canadian government addresses this reality by selecting applicants with knowledge of English and/or French. However, policymakers should also recognize that many new immigrants have serious official languages proficiency problems, especially at the level required by highly-paid occupations, and hence should address this need by creating more language training centers, which can increase immigrants' opportunities to become competitive in the labour market.

Another issue that could be of interest for policymakers is that of the support of various community activities. The present study shows that participation to various group activities is positively affecting incomes of both immigrants and the Canadian-born. Further research distinguishing between types of community activities would be able to inform policy in terms of the role of both ethnic and non-ethnic community membership.

5.3 Suggestions for future research

Methodologically, the analysis suggests that studying the value of foreign credentials in Canada for all immigrants might obscure differences between immigrants at different stages of integration. However, these results are obtained based on cross-sectional data, which does not allow separating assimilation effects from cohort effects. Therefore, the ultimate test for this assertion is a similar study performed on longitudinal data. Probably the only dataset in Canada that can be used for such purpose is the Longitudinal Survey of Immigrants to Canada.

Like most immigration research, the present study relies on self-reported measures of official languages proficiency, which cannot measure non-standard aspects of language and can be submitted to either underestimation or overestimation by individual respondents. Therefore, a study of the effect of official languages proficiency on economic integration that uses an objective, well-developed measure of language is yet to come. The same applies to the need to document the value attributed to knowledge of English and to that of French, depending on the geographical area.

The present study offers support to the claim that social networks can represent sources of capital, which impact the economic success of an individual. Future research might also investigate how the various sources of social capital differently impact economic performance, and whether immigrants and non-immigrants equally benefit from these sources of social capital. Social capital is particularly relevant for immigrants, as this might answer the question of whether ethnic attachment is more beneficial rather than detrimental to the overall economic success of the immigrant.

Compared to Canadian degrees, foreign education is shown to be an important disadvantage that immigrants have in the Canadian labour market. This is more acute for immigrants arriving from developing countries, which are predominantly visible minorities. Therefore, it can be argued that while some white immigrants encounter devaluation of their foreign credentials, visible minority immigrants face a lack of recognition of foreign education. This distinction is of particular importance for future research, in order to separate between racial discrimination and foreign education devaluation. Qualitative studies of employers' hiring practices and professional associations' assessment procedures and results might shed more light on this matter.

The immigrant and visible minority issue is of particular concern in newcomer-preferred destination cities such as Toronto, Vancouver, or Montreal. Moreover, unlike in the other provinces, immigrant retention rates are above 90 percent in Ontario and British Columbia and almost 80 percent in Quebec (CIC 2000). Immigrants and visible minorities are concentrated in these cities, and are

expected to increase even further (Belanger and Malenfant 2005). Furthermore, these cities are the driving forces of the Canadian economy. As such, the importance of the economic performance of immigrants in these metropolitan cities is of particular importance. Therefore, future studies on immigrants' economic integration limited to the population of these cities can bring further insight to the understanding of this matter.

At the same time, immigrants' concentration in large cities is of increasing concern for policymakers. Efforts are being made towards a more balanced geographic distribution of immigrants, to address the "pressure on the absorptive capacity of the country's largest cities; [and] an interest, in various parts of the country, in sharing in the benefits of immigration" (CIC 2001). Winnipeg constitutes an example of a medium-sized Canadian city that has developed a provincial immigration program, which successfully attracts immigrants to Manitoba. However, the retention ability of cities such as Winnipeg is of equal concern (Derwing et. al 2005). Studies of the immigrants' inter-provincial mobility and the means to increase retention can contribute to these efforts.

5.4 Concluding remarks

In this chapter I have reviewed the main findings of the study, some of its limitations, policy implications of the results, and suggestions for future research. The present study shows evidence of the economic performance of Canadian immigrants at different stages of integration and the devaluation of their foreign credentials. Results suggest that human capital theory is a theoretical framework with important limitations in explaining immigrants' economic performance in the

Canadian labour market. Thus, social capital theory, screening hypothesis, and labour market segmentation theories are used to interpret the findings.

The study has implications to the current 'point system' used to select applicants for immigration to Canada. Results also suggest that maybe more important than having economically efficient criteria of selecting immigrants is the necessity of social management of the immigrant population already in Canada. This refers to the need for objective and equal assessment of foreign credentials at the federal level, official languages training services, and racial employment equality. Addressing these realities would be beneficial for the immigrant population, the economy of scale, and the Canadian society.

References

- Abu-Laban, Yasmeen and Christina Gabriel (2002) *Selling Diversity: Immigration, Multiculturalism, Employment Equity, and Globalization*. Peterborough: Broadview Press.
- Adamuti-Trache, Maria and Robert Sweet (2005) Exploring the relationship between educational credentials and the earnings of immigrants. *Canadian Studies in Population* 32 (2): 177-201.
- Akbari, Ather (1999) Immigrant 'quality' in Canada: More direct evidence of human capital content, 1956-1994. *International Migration Review* 33 (1): 156-175.
- Ashton, David N. (1986) *Unemployment under Capitalism. The Sociology of British and American Labour Markets*. Westport: Greenwood Press.
- Aydemir, Abdurrahman and Mikal Skuterud (2004) Explaining the deteriorating entry earnings of Canada's immigrant cohorts: 1966-2000. Analytical Studies Research Paper Series 11F0019MIE2004225. Ottawa: Statistics Canada.
- Baker, Michael and Dwayne Benjamin (1994) The performance of immigrants in the Canadian labour market. *Journal of Labor Economics* 12 (3): 369-405.
- Baptiste, Ian (2001) Educating lone wolves: Pedagogical implications of human capital theory. *Adult Education Quarterly* 51 (3): 184-201.
- Basran, Gurcharn and Li Zong (1998) Devaluation of credentials as perceived by visible minority professional immigrants. *Canadian Ethnic Studies* 30 (3): 6-23.
- Battershill, Charles (1992) Migrant doctors in a multicultural society: Policies, barriers and equity. In Vic Satzewich (ed.) *Deconstructing a Nation:*

- Immigration, Multiculturalism and Racism in '90s Canada*. Halifax: Fernwood Publishing.
- Bauder, Harald (2003) "Brain Abuse", or the devaluation of immigrant labour in Canada. *Antipode* 35 (4): 699-717.
- Becker, Gary (1992) The Adam Smith address: Education, labor force quality, and the economy. *Business Economics* 27 (1): 7-12.
- Becker, Gary (1967) *The Economic Approach to Human Behavior*. Chicago: The University of Chicago Press.
- Becker, Gary (1964) *Human Capital. A Theoretical and Empirical Analysis, with Special Reference to Education*. New York: Columbia University Press.
- Becker, Gary (1962) Investment in human capital: A theoretical analysis. *Journal of Political Economy* 70 (Suppl. 5): 9-49.
- Belanger, Alain and E. Caron Malenfant (2005) Population projections of visible minority groups, Canada, provinces and regions, 2001-2017. Statistics Canada, Demography Division. Ottawa: Statistics Canada.
- Berg, Ivan (1970) *Education and Jobs: The Great Training Robbery*. New York: Praeger Publishers.
- Bloom, David E., Gilles Grenier and Morley Gunderson (1995) The changing labour market position of Canadian immigrants. *Canadian Journal of Economics* 28 (4b): 987-1005.
- Bonacich, Edna (1979) The past, present, and future of split labour market theory. *Research in Race and Ethnic Relations* 1: 17-64. Greenwich: JAI Press.

- Borjas, George J. (1988) *International Differences in the Labor Market Performance of Immigrants*. Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research.
- Borjas, George J. (1985) Assimilation, changes in cohort quality, and the earnings of immigrants. *Journal of Labor Economics* 3 (4): 463-489.
- Bourdieu, Pierre (1986) The forms of capital. In J.G. Richardson (ed.) *Handbook of Theory and Research for the Sociology of Education*. Westport: Greenwood Press: 241-258.
- Boyd, Monica (1999) Integrating gender, language and race. In Shiva Halli and Leo Driedger (eds.) *Immigrant Canada: Demographic, Economic and Social Challenges*. Toronto: University of Toronto Press.
- Boyd, Monica (1985) *Ascription and Achievement: Studies in Mobility and Status Attainment in Canada*. Ottawa: Carleton University Press.
- Chiswick, Barry and Paul Miller (2001) A model of destination-language acquisition: Application to male immigrants in Canada. *Demography* 38 (3): 391-409.
- Citizenship and Immigration Canada (CIC) Facts and Figures 2005.
<http://www.cic.gc.ca/english/pdf/pub/facts2005.pdf> (Last accessed on October 21, 2006).
- Citizenship and Immigration Canada (CIC) (2001) Towards a more balanced geographic distribution of immigrants.
- Citizenship and Immigration Canada (CIC) (2000) The Interprovincial Migration of Immigrants to Canada. IMDB Profile Series.

- Coleman, James S. (1990) *Foundations of Social Theory*. Cambridge: Belknap Press of Harvard University Press.
- Coleman, James S. (1988) Social capital in the creation of human capital. *The American Journal of Sociology* 94: S95-121.
- Coulson, R.G. and D.J. Devoretz (1993) Human capital content of Canadian immigrants: 1967-1987. *Canadian Public Policy* 19 (4): 357-366.
- Derwing, Tracey, Harvey Krahn, Jennifer Foote, and Lori Diepenbroek (2005) The attraction and retention of immigrants to Edmonton: A case study of a medium sized Canadian city. *PCERII Working Paper Series WP05-05*.
- deSilva, Arnold (1997) Earnings of immigrant classes in the early 1980s in Canada: A reexamination. *Canadian Public Policy* 23 (2): 179-202.
- deSilva, Arnold (1992) *Earnings of Immigrants: A Comparative Analysis*. Ottawa: Canada Communication Group – Publishing.
- Fagnan, Sheila (1995) Canadian immigrant earnings, 1971-86. In Don J. DeVoretz (ed.) *Diminishing Returns: The Economics of Canada's Recent Immigration Policy*. Toronto: C.D. Howe Institute; Vancouver: The Laurier Institution.
- Freedman, Marcia (1976) *Labor Markets: Segments and Shelters*. Montclair: Allanheld, Osmun & Co. Publishers.
- Fowler, Floyd J. Jr. (2002) *Survey Research Methods*. Third Edition. Thousand Oaks: Sage Publications.

- Fox, Bonnie J. and John Fox (1987) Occupational gender segregation in the Canadian labour force, 1931-1981. *The Canadian Review of Sociology and Anthropology* 24 (3): 374-397.
- Frenette, Marc and Rene Morissette (2003) Will they ever converge? Earnings of immigrant and Canadian-born workers over the last two decades. Analytical Studies Research Paper Series 11F0019MIE2003215. Ottawa: Statistics Canada.
- Grant, Mary L. (1999) Evidence of new immigrant assimilation in Canada. *Canadian Journal of Economics* 32 (4): 930-955.
- Hawkins, Freda (1988) *Canada and Immigration: Public Policy and Public Concern*. Kingston: McGill-Queen's University Press.
- Hiebert, Daniel (1999) Local geographies of labour market segmentation: Montreal, Toronto, and Vancouver, 1991. *Economic Geography* 75 (4): 339-369.
- Hum, Derek and Wayne Simpson (2004) Economic integration of immigrants to Canada: A short survey. *Canadian Journal of Urban Research* 13 (1): 46-61.
- Kazemipur, Abdolmohammed and Shiva Halli (2001a) The changing colour of poverty in Canada. *Canadian Review of Sociology & Anthropology* 38 (2): 217-238.
- Kazemipur, Abdolmohammed and Shiva Halli (2001b) Immigrants and 'new poverty': The case of Canada. *International Migration Review* 35 (4): 1129-1156.

- Krahn, Harvey, Tracey Derwing, Marlene Mulder, and Lori Wilkinson (2000)
Educated and underemployed: Refugee integration into the Canadian labour
market. *Journal of International Migration and Integration* 1(1): 59-84.
- Krahn, Harvey and Graham Lowe (2002) *Work, Industry, and Canadian Society*.
Fourth edition. Scarborough: Thomson Nelson.
- Lamba, Navjot K. (2003) The employment experiences of Canadian refugees:
Measuring the impact of human and social capital on quality of employment.
Canadian Review of Sociology and Anthropology 40 (1): 45-64.
- Laroche, Mireille and Marcel Merette (1999) On the concept and dimensions of
human capital in a knowledge-based economy context. *Canadian Public Policy*
25 (1): 87-100.
- Li, Peter S. (2004) Social capital and economic outcomes for immigrants and
ethnic minorities. *Journal of International Migration and Integration* 5 (2): 171-
190.
- Li, Peter S. (2003a) Initial earnings and catch-up capacity of immigrants.
Canadian Public Policy 29 (1): 319-337.
- Li, Peter S. (2003b) *Destination Canada. Immigration Debates and Issues*. Don
Mills: Oxford University Press.
- Li, Peter S. (2001) The market worth of immigrants' educational credentials.
Canadian Public Policy 27 (1): 23-38.
- Li, Peter S. (2000) Earnings disparities between immigrants and native-born
Canadians. *Canadian Review of Sociology & Anthropology* 37 (3): 289-311.

Little, Angela (2003) Motivating learning and the development of human capital.

Compare 22 (4): 437-452.

Marginson, Simon (1997) *Markets in Education*. St. Leonards: Allen & Unwin.

McBride, Stephen (2000) Policy from what? Neoliberal and human capital theoretical foundations of recent Canadian labour market policy. In Mike Burke, Colin Moores and John Shields (eds.) *Restructuring and resistance: Canadian public policy in an age of global capital*. Halifax: Fernwood.

McDade, Kathryn (1988) *Barriers to Recognition of the Credentials of Immigrants in Canada*. Ottawa: Studies in Social Policy. Institute for Research on Public Policy.

McDonald, James Ted and Christopher Worswick (1998) The earnings of immigrant men in Canada: Job tenure, cohort, and macroeconomic conditions. *Industrial and Labor Relations Review* 51 (3): 465-482.

Osberg, Lars (1981) *Economic Inequality in Canada*. Toronto: Butterworths.

Pendakur, Ravi (2000) *Immigrants and the Labour Force: Policy, Regulation, and Impact*. Montreal: McGill-Queen's University Press.

Portes, Alejandro (1998) Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology* 24: 1-24.

Putnam, Robert D. (2000) *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.

Rajagopal, Indhu (1990) The glass ceiling in the vertical mosaic: Indian immigrants in Canada. *Canadian Ethnic Studies* 22 (1): 96-105.

- Reitz, Jeffrey G. (1998) *Warmth of the Welcome: The Social Causes of Economic Success for Immigrants in Different Nations and Cities*. Boulder, Colorado: Westview Press.
- Salamon, Lester M. (1991) Overview: Why human capital? Why now?. In David Hornbeck and Lester Salamon (eds.) *Human Capital and America's Future*. Baltimore: The Johns Hopkins University Press.
- Scassa, Teresa (1994) Language standards, ethnicity and discrimination. *Canadian Ethnic Studies* 26 (3): 105-121.
- Schultz, Theodore W. (1971) *Investment in Human Capital. The Role of Education and of Research*. New York: The Free Press.
- Shamsuddin, Abul F.M. (1998) The double-negative effect on the earnings of foreign-born females in Canada. *Applied Economics* 30: 1187-1201.
- Skinner, Curtis (1995) Urban labour markets and young black men: A literature review. *Journal of Economic Issues* 29 (1): 47-65.
- Sorensen, Marianne (1995) The match between education and occupation for immigrant women in Canada. *Canadian Ethnic Studies* 27 (1).
- Sweetman, Arthur (2004) Immigrant source country educational quality and Canadian labour market outcomes. Analytical Studies Research Paper Series 11F0019MIE2004234. Ottawa: Statistics Canada.
- Wanner, Richard (2003) Entry class and the earnings attainment of immigrants to Canada, 1980-1995. *Canadian Public Policy* 29 (1): 53-71.

Wanner, Richard (1998) Prejudice, profit, or productivity: Explaining returns to human capital among male immigrants to Canada. *Canadian Ethnic Studies* 30 (3): 24-55.

Wilkinson, Lori, Tracey Peter and Renuka Chaturvedi (2006) The short-term, medium-term and long-term economic performance of immigrant women in Canada and the United States. *Journal of International Migration and Integration* 6(3).

Appendices

Appendix A. 'Point system' for selecting skilled worker immigrants, Canada*.

Factor	Points (maximum)
<i>Education</i>	25
<i>Official languages</i>	24
<i>Work experience</i>	21
<i>Age</i>	10
<i>Arranged employment in Canada</i>	10
<i>Adaptability</i>	10
Total	100
Pass mark	67

* Other information on the point system is available at <http://www.cic.gc.ca/english/skilled/index.html>

Appendix B. Correlation matrix of the independent variables for Canadian-born population

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24	X25
X1	1.000	0.398	0.149	-0.595	-0.460	0.008	0.086	0.417	-0.165	-0.032	-0.286	-0.072	-0.054	0.013	0.108	0.149	0.305	0.322	0.253						
X2	0.398	1.000	-0.218	-0.407	-0.131	-0.086	0.036	0.261	0.021	-0.227	-0.072	-0.072	-0.017	0.025	0.079	0.053	0.161	0.191	0.119						
X3	0.149	-0.218	1.000	-0.318	-0.118	-0.082	-0.014	-0.143	-0.038	-0.169	0.050	-0.032	0.004	-0.021	0.070	0.054	0.069	0.022	0.022						
X4	-0.595	-0.407	-0.318	1.000	0.245	0.011	0.008	-0.323	0.142	0.189	0.031	0.018	0.022	-0.009	-0.077	-0.080	-0.382	-0.323	-0.203						
X5	-0.460	-0.131	-0.118	0.245	1.000	-0.008	-0.096	-0.110	0.026	0.078	0.019	0.022	-0.009	-0.002	-0.017	-0.055	0.039	-0.004	0.030						
X6	0.008	-0.030	-0.014	0.008	-0.006	0.322	1.000	0.322	-0.089	-0.082	0.389	0.070	-0.030	-0.016	0.066	-0.032	0.007	-0.023	0.061						
X7	0.417	0.261	-0.143	-0.038	-0.169	-0.050	-0.032	0.004	0.021	-0.072	1.000	-0.305	-0.350	-0.019	0.013	0.053	0.095	0.136	0.159						
X8	-0.286	-0.072	-0.072	-0.017	0.025	0.078	0.389	-0.082	-0.107	-0.305	-0.350	1.000	-0.288	-0.009	-0.013	-0.041	-0.043	-0.062	-0.047						
X9	-0.032	-0.072	0.050	0.031	0.019	0.030	-0.075	-0.016	0.009	-0.001	1.000	-0.320	1.000	-0.157	-0.296	0.022	0.044	0.18	-0.046						
X10	-0.054	-0.017	-0.032	0.018	0.022	-0.016	0.066	-0.019	-0.013	-0.010	-0.320	1.000	-0.320	1.000	-0.157	-0.296	0.022	0.044	0.18						
X11	0.013	0.025	0.004	-0.033	-0.009	-0.002	-0.032	0.013	-0.024	-0.013	-0.227	-0.157	1.000	0.102	0.034	0.082	0.036	0.061	-0.001						
X12	0.108	0.079	-0.021	0.005	-0.077	-0.017	0.007	0.053	-0.041	-0.080	0.193	0.292	0.102	1.000	-0.097	0.026	0.065	0.025	0.025						
X13	0.305	0.161	0.054	-0.170	-0.382	0.039	0.062	0.136	-0.062	-0.088	-0.182	0.044	0.082	0.082	0.107	1.000	0.502	0.031	0.031						
X14	0.322	0.191	0.069	-0.223	-0.323	-0.004	0.049	0.159	-0.047	-0.133	-0.124	0.018	0.036	0.065	0.061	0.502	1.000	0.096	0.096						
X15	0.253	0.119	0.022	-0.203	-0.034	0.030	0.061	0.166	-0.122	-0.074	-0.009	-0.046	-0.001	0.025	0.128	0.031	0.096	1.000	1.000						

Appendix C. Correlation matrix of the independent variables for immigrant population

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24	X25
X1	1.000	0.075	-0.107	-0.085	-0.042	0.060	0.269	0.073	0.291	-0.291	-0.154	-0.011	0.056	0.377	-0.162	-0.335	0.026	0.018	-0.003	0.020	0.111	0.284	0.341	0.268	
X2	0.075	1.000	-0.295	-0.399	-0.505	-0.194	0.101	0.052	-0.089	0.363	0.209	-0.574	-0.001	0.008	0.098	-0.090	-0.144	0.026	-0.028	-0.017	-0.107	0.073	0.105	0.084	-0.106
X3	-0.107	-0.295	1.000	-0.113	-0.190	-0.353	-0.034	-0.102	0.043	-0.244	-0.032	0.195	0.015	0.009	-0.012	0.012	0.13	0.008	-0.014	-0.101	-0.003	-0.041	0.002	-0.079	0.043
X4	-0.085	-0.399	-0.113	1.000	-0.192	-0.048	-0.002	0.099	0.063	-0.052	0.202	-0.009	-0.026	-0.060	0.038	0.074	0.048	-0.018	-0.046	0.090	0.008	-0.109	-0.077	-0.042	-0.042
X5	-0.042	-0.505	-0.190	-0.192	1.000	0.487	-0.059	0.005	0.077	-0.479	-0.261	0.332	-0.008	0.006	-0.095	0.087	0.088	-0.082	0.045	0.086	0.108	-0.113	-0.090	-0.040	0.066
X6	0.060	-0.194	-0.353	-0.048	0.487	1.000	-0.110	0.087	-0.001	-0.358	-0.347	0.156	0.001	-0.024	-0.007	0.019	0.019	-0.012	-0.013	0.037	0.241	-0.085	-0.103	-0.006	-0.016
X7	0.269	0.209	-0.574	-0.001	-0.002	0.099	1.000	-0.176	-0.326	0.133	0.137	0.048	0.132	-0.056	0.11	0.132	0.12	-0.019	-0.012	0.009	0.016	0.072	0.097	0.059	0.062
X8	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	1.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
X9	0.148	0.068	0.042	0.069	0.077	-0.001	0.099	-0.006	0.096	0.076	0.163	0.048	0.012	0.064	0.145	0.163	0.154	-0.040	-0.012	0.014	0.063	0.170	0.203	0.258	0.213
X10	0.073	0.363	0.244	0.043	-0.479	-0.358	-0.133	-0.006	-0.071	1.000	0.307	-0.316	-0.018	-0.020	0.050	-0.094	-0.122	-0.079	-0.017	-0.040	-0.151	0.150	0.170	0.078	-0.054
X11	-0.291	0.209	-0.032	-0.052	0.332	-0.162	-0.084	-0.048	0.163	0.307	1.000	-0.321	-0.018	-0.036	-0.084	-0.050	-0.034	-0.017	-0.007	-0.067	-0.139	-0.204	-0.120	-0.083	0.054
X12	-0.154	-0.574	0.195	0.202	0.332	0.156	-0.084	-0.048	0.163	-0.321	-0.018	1.000	0.035	0.005	-0.106	0.103	0.222	-0.032	-0.001	0.015	0.077	-0.079	-0.120	0.054	-0.054
X13	-0.011	-0.001	0.015	-0.009	-0.008	0.001	-0.162	-0.129	0.015	-0.316	-0.018	0.035	1.000	0.725	-0.096	-0.032	0.242	0.023	0.006	-0.001	-0.026	0.035	0.012	-0.013	0.034
X14	0.056	0.008	0.009	-0.026	0.006	-0.024	-0.026	-0.041	-0.006	0.020	-0.036	0.005	0.725	1.000	-0.045	-0.115	0.132	-0.070	0.018	-0.031	-0.029	0.035	0.023	0.006	-0.023
X15	0.377	0.098	-0.012	-0.060	-0.095	-0.007	0.111	-0.145	-0.343	0.050	-0.084	-0.106	-0.096	-0.045	1.000	-0.310	-0.343	0.030	0.038	-0.015	-0.047	0.070	0.163	0.194	0.138
X16	-0.162	-0.090	0.012	0.038	0.087	0.019	-0.007	0.158	-0.074	-0.007	0.103	-0.032	-0.115	-0.030	-0.310	1.000	-0.308	0.006	0.039	0.072	-0.017	-0.070	-0.093	-0.108	-0.083
X17	-0.335	-0.144	0.113	0.074	0.088	-0.010	-0.152	-0.167	0.254	-0.122	0.050	0.122	0.262	0.132	-0.343	-0.308	1.000	-0.443	-0.008	-0.036	-0.035	-0.064	-0.164	-0.172	-0.089
X18	0.026	0.026	0.008	0.048	-0.082	-0.012	0.024	0.039	-0.040	-0.029	-0.034	-0.032	0.023	-0.070	0.030	0.006	-0.043	1.000	-0.141	1.000	-0.173	-0.530	0.056	0.015	-0.002
X19	0.018	-0.028	-0.014	-0.018	0.045	-0.013	-0.013	-0.022	-0.012	-0.017	0.017	-0.001	0.006	0.018	0.038	-0.008	-0.141	-0.141	1.000	-0.173	-0.530	0.056	0.015	-0.002	0.018
X20	-0.003	-0.017	-0.101	-0.046	0.086	0.037	0.000	0.005	-0.014	-0.040	-0.007	0.015	-0.001	0.015	0.072	-0.036	-0.165	-0.173	1.000	0.108	-0.026	0.023	0.022	-0.013	
X21	0.020	-0.107	0.003	0.090	0.108	0.241	-0.016	0.072	0.003	-0.151	-0.167	0.077	-0.026	-0.029	-0.047	-0.017	-0.035	0.198	-0.530	1.000	-0.090	-0.020	0.015	-0.034	
X22	0.111	0.073	-0.041	0.068	-0.113	-0.068	0.077	0.043	-0.170	0.150	0.025	-0.079	0.035	0.036	0.029	-0.076	-0.064	-0.007	0.056	-0.028	-0.090	1.000	0.056	0.054	0.075
X23	0.284	0.105	0.092	-0.109	-0.090	-0.103	0.097	0.043	-0.203	0.170	-0.204	-0.139	0.012	0.023	0.163	-0.093	-0.164	0.063	0.015	0.023	-0.020	0.056	1.000	0.632	0.114
X24	0.341	0.084	-0.079	-0.077	-0.040	-0.006	0.039	0.039	-0.229	0.079	-0.219	-0.120	-0.013	0.006	0.194	-0.108	-0.172	0.019	-0.002	0.022	0.015	0.054	0.632	1.000	0.158
X25	0.268	-0.106	0.043	-0.042	0.066	-0.016	0.062	0.073	-0.239	-0.034	-0.083	0.054	0.024	-0.023	0.158	-0.083	-0.089	-0.001	0.018	-0.013	-0.034	0.075	0.114	0.158	1.000

Appendix D. Correlation matrix of the independent variables for short- and medium-term immigrant population

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24	X25
X1	1.000	0.068	0.042	-0.079	-0.150	-0.119	0.167	0.097	-0.656	0.132	-0.224	-0.295	0.066	-0.097	-0.404	-0.085	-0.361	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321
X2	0.068	1.000	-0.153	-0.134	-0.340	-0.007	0.055	0.021	-0.072	0.184	0.115	-0.302	-0.060	-0.026	0.152	-0.139	-0.085	-0.059	-0.013	0.004	0.036	0.050	0.089	0.070	-0.135
X3	-0.042	-0.153	1.000	-0.170	-0.429	-0.652	-0.002	-0.125	-0.084	-0.137	0.019	0.053	-0.008	-0.043	0.054	-0.007	0.066	-0.038	-0.016	-0.127	-0.026	0.016	0.143	0.095	-0.120
X4	-0.079	-0.134	-0.170	1.000	-0.377	0.068	0.029	-0.010	0.107	0.271	0.017	0.008	-0.004	-0.017	-0.164	0.139	0.038	-0.163	0.012	0.129	0.025	-0.149	-0.151	-0.114	-0.027
X5	-0.150	-0.340	-0.429	-0.377	1.000	-0.553	-0.106	0.012	0.176	-0.407	-0.059	0.223	0.025	-0.052	-0.107	0.087	0.053	-0.083	-0.086	0.111	0.144	-0.136	-0.207	-0.110	-0.140
X6	-0.119	-0.007	-0.652	0.068	-0.553	1.000	-0.119	0.036	-0.024	0.024	0.023	-0.028	-0.214	-0.206	0.039	0.041	-0.122	0.071	-0.025	-0.019	0.068	0.043	0.036	0.057	0.057
X7	0.167	0.095	-0.002	0.048	-0.106	-0.119	1.000	-0.169	-0.264	0.054	0.021	-0.038	0.214	-0.206	0.039	0.041	-0.122	0.071	-0.025	-0.019	0.068	0.043	0.036	0.057	0.057
X8	0.097	0.071	-0.125	-0.010	0.025	0.036	-0.119	1.000	-0.169	-0.264	0.054	0.021	-0.038	0.214	-0.206	0.039	0.041	-0.122	0.071	-0.025	-0.019	0.068	0.043	0.036	0.057
X9	-0.656	-0.072	-0.084	0.107	0.126	0.178	-0.264	0.054	1.000	-0.169	-0.264	0.054	0.021	-0.038	0.214	-0.206	0.039	0.041	-0.122	0.071	-0.025	-0.019	0.068	0.043	0.036
X10	0.132	-0.224	-0.295	0.066	-0.097	-0.404	-0.085	-0.361	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.321
X11	0.066	-0.097	-0.404	-0.085	-0.361	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046
X12	-0.295	0.066	-0.097	-0.404	-0.085	-0.361	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.000	0.061	-0.020	-0.046
X13	0.066	-0.097	-0.404	-0.085	-0.361	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.000	0.061	-0.020	-0.046	0.095
X14	-0.097	-0.404	-0.085	-0.361	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.000	0.061	-0.020	-0.046	0.095	0.257
X15	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046
X16	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046	0.095
X17	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.000	0.061	-0.020	-0.046	0.095	0.257
X18	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046
X19	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046	0.095
X20	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046
X21	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046	0.095
X22	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046
X23	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046	0.095
X24	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046
X25	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.371	0.321	0.000	0.061	-0.020	-0.046	0.095	0.257	0.000	0.061	-0.020	-0.046	0.095

Appendix E. Correlation matrix of the independent variables for long-term immigrant population*

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24	X25
X1	1.000	0.164	-0.208	-0.102	-0.069	0.312	0.181	-0.644	0.086	0.125	-0.286	-0.279	-0.021	0.084	-0.368	-0.207	-0.330	0.033	-0.004	0.000	0.023	0.134	0.289	0.323	0.230
X2	0.164	1.000	-0.374	-0.331	-0.431	0.107	0.071	-0.182	0.273	0.047	0.299	0.036	0.016	0.010	0.135	-0.056	-0.174	0.031	-0.018	-0.013	-0.100	0.047	0.132	0.135	-0.055
X3	-0.208	-0.374	1.000	-0.094	-0.143	-0.074	0.001	0.02	0.231	0.037	-0.040	0.250	0.011	0.025	-0.045	0.045	0.035	0.067	-0.017	-0.072	0.016	0.046	0.080	0.104	-0.013
X4	-0.102	-0.331	-0.094	1.000	-0.143	-0.074	0.001	0.02	0.231	0.037	-0.040	0.250	0.011	0.025	-0.045	0.045	0.035	0.067	-0.017	-0.072	0.016	0.046	0.080	0.104	-0.013
X5	-0.069	-0.491	-0.131	-0.143	1.000	-0.092	-0.084	0.103	0.421	-0.436	-0.095	0.312	-0.025	0.025	-0.089	0.037	0.119	-0.061	0.048	0.044	0.109	-0.071	-0.097	0.043	0.068
X6	0.312	0.107	-0.044	-0.074	-0.092	1.000	-0.179	-0.317	-0.348	0.104	0.152	-0.044	-0.096	-0.146	-0.008	0.130	0.016	-0.162	0.009	-0.023	0.009	-0.012	0.119	0.070	0.068
X7	-0.644	-0.491	-0.131	-0.143	-0.092	-0.179	1.000	-0.317	-0.348	0.104	0.152	-0.044	-0.096	-0.146	-0.008	0.130	0.016	-0.162	0.009	-0.023	0.009	-0.012	0.119	0.070	0.068
X8	0.086	-0.162	-0.283	0.231	0.421	-0.104	0.103	-0.033	1.000	-0.102	0.150	0.163	0.008	-0.034	-0.334	0.179	0.236	-0.050	-0.004	-0.020	-0.003	0.124	-0.178	-0.191	-0.202
X9	0.125	0.293	-0.257	0.077	-0.436	0.152	-0.022	-0.102	-0.348	1.000	-0.167	-0.251	-0.008	0.027	0.065	-0.081	-0.137	-0.038	-0.016	-0.018	-0.157	0.112	0.223	0.123	-0.025
X10	-0.286	-0.407	0.061	-0.040	-0.095	-0.044	-0.107	0.150	-0.352	0.167	1.000	-0.092	0.011	-0.047	-0.079	0.049	0.066	-0.047	0.060	0.012	-0.172	-0.033	-0.244	-0.236	-0.003
X11	-0.279	-0.580	0.224	0.250	0.312	-0.096	-0.074	0.163	-0.352	0.167	-0.092	1.000	-0.008	-0.007	-0.117	0.069	0.154	-0.012	-0.010	-0.018	0.093	-0.052	-0.149	-0.131	-0.021
X12	0.023	0.071	0.076	0.019	-0.011	-0.025	-0.146	-0.137	0.008	-0.013	-0.008	0.011	1.000	-0.008	-0.119	-0.044	0.199	0.011	0.022	0.001	-0.052	0.050	0.005	-0.074	0.021
X13	0.068	0.100	-0.006	-0.025	0.025	0.008	-0.033	-0.034	-0.017	0.027	-0.047	-0.007	0.283	1.000	-0.032	0.109	0.098	0.061	0.009	-0.031	-0.025	0.043	0.057	0.016	0.026
X14	-0.006	0.019	0.019	0.019	0.019	0.019	-0.033	-0.034	-0.017	0.027	-0.047	-0.007	0.283	-0.032	1.000	-0.032	0.109	0.098	0.061	0.009	-0.031	-0.025	0.043	0.057	0.016
X15	0.368	0.115	-0.048	-0.069	-0.099	0.130	-0.131	-0.334	0.016	0.065	-0.079	-0.117	-0.119	-0.032	-0.032	1.000	-0.289	0.015	0.047	0.062	-0.020	-0.062	-0.101	-0.171	-0.087
X16	-0.207	-0.056	0.035	0.049	0.037	0.016	-0.025	0.179	-0.022	-0.081	0.049	0.069	-0.044	-0.109	-0.289	-0.289	1.000	-0.008	-0.013	-0.046	-0.057	-0.163	-0.164	-0.071	
X17	-0.330	-0.174	0.135	0.079	0.119	-0.162	-0.183	0.238	0.008	-0.137	0.066	0.154	0.299	0.098	-0.337	0.293	0.293	1.000	-0.071	-0.008	-0.013	-0.046	-0.057	-0.163	-0.164
X18	0.033	0.031	0.027	0.007	0.061	0.009	0.057	-0.050	0.006	-0.038	-0.047	-0.012	0.011	-0.061	0.027	0.015	-0.071	-0.008	-0.013	-0.046	-0.057	-0.163	-0.164	-0.071	
X19	0.048	-0.018	-0.018	0.048	-0.023	-0.069	0.069	0.069	0.006	-0.018	0.059	0.016	0.022	0.009	0.012	0.047	-0.008	-0.013	-0.046	-0.057	-0.163	-0.164	-0.071	-0.087	
X20	0.009	0.010	0.012	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	1.000	-0.071	-0.008	-0.013	-0.046	-0.057	-0.163	-0.164
X21	0.033	0.03																							

Legend:

- X1 - Education (number of years of schooling)
- X2 - Highest education attained in Canada
- X3 - Highest education attained in Eastern or Southern Europe
- X4 - Highest education attained in Central, South America, Caribbean, Bermuda, Africa, or Oceania
- X5 - Highest education attained in Asia or the Middle East
- X6 - Visible minority status
- X7 - Field of study - liberal arts
- X8 - Field of study - commerce, management & business
- X9 - Field of study - no specialization
- X10 - Official languages proficiency index
- X11 - Canadian work experience
- X12 - Foreign work experience
- X13 - Gender
- X14 - Hours worker per week
- X15 - Occupation - health, natural and applied sciences
- X16 - Occupation - sales and service
- X17 - Occupation - trades, transport, primary industry, processing, manufacturing and utilities
- X18 - Province of residence - Quebec
- X19 - Province of residence - Manitoba, Saskatchewan, or Alberta
- X20 - Province of residence - British Columbia
- X21 - Residing in Toronto, Montreal, or Vancouver
- X22 - Group activities participation
- X23 - Mother's highest level of schooling
- X24 - Father's highest level of schooling
- X25 - Spouse's highest level of schooling