The Economic Integration of Recent Immigrants to Canada: A Longitudinal Analysis of Dimensions of Employment Success

by

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Abstract

The employment success of immigrants to Canada has been a primary focus of sociological research on immigrant integration. However, much of this research has examined the concept of "employment success" solely in terms of earnings. Studies that focus on whether immigrants obtain employment matching their desired or pre-migration occupations provide inadequate measures of this aspect of employment success by examining whether or not immigrants obtain employment in their desired occupations at a very broad level (e.g. a skill type match). In addition, the majority of quantitative analyses use cross-sectional data to examine the economic integration of immigrants in Canada. The following research tests hypotheses which examine the relationships that various ascribed, human capital, and occupational characteristics have with multiple dimensions of employment success for a cohort of recent immigrants during their first two years in Canada (2001 to 2003). Longitudinal analyses of several dimensions of the employment success of recent immigrants are conducted with the use of the Longitudinal Survey of Immigrants to Canada. These "dimensions" include an examination of the likelihood that an immigrant will obtain employment in his or her intended occupation, or a "job match", at some point during his or her first two years in Canada, the rate at which he or she obtains a job match during this time, and the change in his or her occupational prestige scores and wages between jobs. A case study of immigrant engineers is also presented, providing some insight into the employment success of immigrants seeking employment in regulated professions. Human capital theory, the theory of discrimination, and Weber's theory of social closure are employed to examine different predictors of immigrant employment success. A distinctive contribution of this study is the examination of how different characteristics of an immigrant's intended occupation may influence the likelihood of him or her obtaining a job match and the rate at which he or she does so. Several significant results are obtained in these analyses. Notably, immigrants who seek high-status occupations have less employment success in Canada than those who seek low-status occupations, suggesting that the difficulties immigrants encounter in the Canadian labour market are in part due to the process of social closure. In addition, immigrants whose levels of education are either lower than or

higher than a Bachelor's degree have greater success in obtaining job matches than immigrants with a Bachelor's degree only. Visible minority status is consistently found to be a significant predictor of immigrant employment success, indicating that racial discrimination may be an impediment to this group's integration into the Canadian labour market. The community in which an immigrant lives is also found to have a significant effect on his or her employment success, indicating that immigrants who live in Montreal, Toronto, or Vancouver have less success than those who live elsewhere in Canada. By examining several different aspects of employment success and accounting for immigrants' employment throughout their first two years in Canada, a more comprehensive picture of the economic integration of recent immigrants is obtained. However, the results indicate that one over-arching theory is not adequate in explaining the process of the economic integration of immigrants in Canada.

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Dedication

This dissertation is dedicated to my parents, Pat and Don Frank, who have both encouraged my love of learning and taught me that the beauty of education lies in the fact that nobody can ever take it away from you.

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Chapter One

Introduction

The employment success of immigrants to Canada has been a major focus of research about immigrant integration; however, previous research has neglected to study this issue as a process. Quantitative research in this field has relied heavily on cross-sectional data, providing an understanding of immigrant integration into Canada's labour force from a single point in time. Longitudinal analyses primarily represent earnings trends or provide solely descriptive information. Existing qualitative research focuses on immigrants from certain countries or those who seek employment in a particular occupation, thus preventing generalization to the wider immigrant population. The following research examines how various ascribed, human capital, and occupational characteristics affect multiple dimensions of the employment success of a cohort of recent immigrants during their first two years in Canada (2001 to 2003). The concept of "employment success" as it relates to recent immigrants is measured by four dependent variables: (1) whether or not immigrants have received a job match with their intended occupations at any point since arriving in Canada; (2) the rate at which an immigrant obtains employment in his or her intended occupation; (3) immigrants' incomes since immigrating to Canada; and (4) immigrants' occupational prestige scores since immigrating to Canada. Studying these four factors allows for a more comprehensive understanding of the economic integration of immigrants in Canada. The longitudinal data used in this study[1] are of particular importance as they allow for an examination of the economic integration of immigrants over time. Just as settlement into a new society takes time, employment success in a new labour market also involves adjustment over time.

The occupational attainment of immigrants to Canada has been the subject of many studies in Canadian sociology. Over the years, changes to Canada's immigration policies and immigrants' regions of origin have contributed to a shift in the focus of much of this research. John Porter's

[1] The research and analysis presented are based on data from Statistics Canada. The views expressed are those of the researcher and do not represent the views of Statistics Canada.

Vertical Mosaic (1965) examines social inequality based on ethnic origin and is a benchmark of ethnic stratification literature in Canada. Often referred to as the "ethnically blocked mobility" thesis, Porter concluded that an ethnic group's entrance status upon immigrating to Canada affected its socio-economic achievement. Ethnic affiliation with a group considered to be "inferior" to Canada's Charter groups was identified by Porter as a hindrance to certain ethnic groups from obtaining higher status positions within Canadian society (Porter, 1965). Since Porter's study some have questioned the ethnically blocked mobility assumption (Gee and Prus, 2000; Lian and Matthews, 1998; Satzewich and Li, 1987; Darroch, 1979). Darroch (1979) questions whether stratification based solely on ethnicity is a permanent phenomenon in Canada. More recently the "vertical mosaic" thesis has been challenged with respect to Canada's "new" immigrant population, resulting in many researchers shifting their concentration to racial stratification, arguing that Canada is better described as a "colour-coded mosaic" (Galabuzi, 2006:32; Fleras and Elliott, 2003; Gee and Prus, 2000; Lian and Matthews, 1998; Herberg, 1990). During the early 1990s the Canadian government changed the selection model for immigrants, creating a model that emphasized attracting more highly educated and highly skilled individuals to contribute to Canada's "knowledge economy". Applicants are selected based on a "points" system in which points are granted for an individual's educational credentials and training, official language proficiency, work experience, and "adaptability" (e.g. immigrants are considered more "adaptable" if they have family or friends living in Canada). In addition, the "new" immigrant population is arriving from different regions of the world than the immigrant population studied by Porter. Because Porter's thesis increasingly appears to be outdated within the context of Canada's changing demography, other approaches have emerged to explain social stratification along either ethnic or racial lines.

The successful integration of immigrants within Canada's labour market has become an increasing concern within Canadian society. This is apparent in the multitude of news stories that describe the difficulties encountered by immigrants when attempting to obtain licensing to practice their occupation (e.g. Toronto Star, 18 June, 2006; Globe and Mail, 19 April, 2005). Many of these

stories also discuss the general lack of employment opportunities appropriate to immigrants' qualifications that are available in Canada (e.g. Globe and Mail, 31 January, 2007; Globe and Mail, 4 May, 2006). The academic response to these concerns has largely focused on the difficulties immigrants have in obtaining employment in occupations for which they are already trained (e.g. Alboim et al., 2005; Bauder, 2003; Li, 2001; Basran and Zong, 1998; McDade, 1988). Immigrants arriving in Canada often come with professional credentials and training, skill sets relevant to Canada's labour market, and a willingness to work in occupational sectors for which Canada is seeking workers (Basran and Zong, 1998). Despite these qualifications, researchers find that many immigrant professionals still report difficulties in finding employment in occupations for which they are trained (Man, 2004; Boyd and Thomas, 2001; Basran and Zong, 1998).

While the devaluation of foreign education and work experience is often identified as a concern to the immigrant population only, the effects of this issue are widespread. These effects range from the emotional and psychological well-being of immigrants and their families to the macro-economic costs to Canadian society. The personal difficulties experienced by underemployed immigrants are illustrated in a news article in which an immigrant who is trained as an engineer accepted a job as a taxi cab driver in a major Canadian city. The reporter states that this individual "saw [the job as a cab driver] as a 'slave' job because he had no options, resented being treated as a servant by customers, and regretted not being able to stand proudly in front of his children" (Globe and Mail, 4 May, 2006). The macro-economic costs are also recounted in the media and academic literature. As reported in the Globe and Mail (15 September, 2004), the Conference Board of Canada has estimated that the underemployment of immigrants "costs [Canada's] economy…between three billion dollars and five billion dollars annually". A main concern is the cost to occupational fields that do not have a great supply of workers with the skills and abilities that are urgently needed. Often licensing and certification procedures or retraining prevents qualified immigrant workers from readily obtaining employment in these fields. Not only does this contribute to the underutilization of human capital, but it also affects the wider society in terms of a slower movement of professional services

(Sparks and Wolfson, 2001; Brouwer, 1999). In addition, the unemployment of immigrants prevents contributions to the tax base and other parts of the economy and is usually of great expense to the welfare system and social services (Thompson 2000; Brouwer, 1999; Mata, 1999). In a 2005 news article, sociologist Jeffrey Reitz asserts that these demands on the social system will lead to a "more widespread public perception of immigrants as a liability or social problem", thus negatively affecting social relationships between immigrant and non-immigrant groups (Globe and Mail, 19 April, 2005).

The underemployment of recent immigrants can contribute to "disharmonious race and ethnic relations" within society (Basran and Zong, 1998:8). Reitz and Banerjee (2007) assert that where inequality between different groups exists in a society, the individuals experiencing disadvantage feel excluded, thereby affecting social cohesion. Gee and Prus (2000:239) assert that economic uncertainty can also serve to "magnify ethnic or racial prejudices in way that operate" to maintain inequality along ethnic or racial lines. Racial and ethnic relations in Canada can be easily strained by the non-recognition and general devaluation of foreign credentials and underemployment of immigrants (Brouwer, 1999; Mata, 1999). Not only does this create feelings of alienation and victimization as a result of discrimination on the systemic, and possibly individual, level, it can also strain the general interaction between immigrant groups and the "majority" group of the host society. Immigrants may experience a sense of exclusion as a result of difficulties in their employment process which could result in feelings of segregation from the general society. The isolation of ethnic communities may then become a problem for ethnic relations (Basran and Zong, 1998). In some cases the frustration felt by immigrants who cannot obtain a job in the fields for which they are trained will lead them to stop seeking employment in that sector or to leave Canada entirely, representing a "waste of human capital" (Basran and Zong, 1998:8). The loss of skilled immigrants to job markets in other countries is also known as "flight capital" (Toronto Star, 21 July, 2007).

Research and debate regarding the barriers and consequences that immigrants face when attempting to gain recognition of prior training and experience is also at the forefront of current immigration concerns. Immigrant integration, whether economic or social, is a core issue within

Canada's immigrant selection process and a general objective of its policy on multiculturalism (Multiculturalism and Citizenship Canada, 1990). While Canada's immigration policy was primarily built upon the objective of filling labour market shortages with qualified immigrants, the reality of unemployment or employment in a field that does not utilize immigrants' training and skills indicates a problem in the immigration process (McDade, 1988); however, the devaluation of credentials by Canadian employers and professional bodies also play a part. Brouwer (1999:6) asserts that there is a "massive disconnect" between policy intent and the reality that many immigrants encounter upon arrival. This reality "makes a mockery of efforts by the immigration department to recruit well-educated immigrants" and therefore undermines the economic objectives of Canada's immigration program (Brouwer, 1999:6). This sentiment is echoed by Canadian media which also assert that there is a "huge disconnect between the labour market and [Canada's] immigration program" (Globe and Mail, 31 January, 2007). The problem may in part be due to the fact that immigration policy is set by the federal government while it is primarily the provincial governments that deal with the difficulties (e.g. unemployment, licensing regulations) faced by new immigrants in the Canadian labour market.

The unemployment and underemployment of immigrants hinders the objectives of Canada's immigration policy for several reasons. First, the devaluation of credentials is particularly problematic for those who immigrated to Canada under the "Skilled Worker" class. Admission to Canada under this class is largely dependent on an immigrant's professional qualifications. These credentials are relevant both to an individual's intended area of employment after migration and to the fulfillment of Canada's economic needs within certain occupational sectors. Therefore, there appears to be a conflict between the stated goals of Canada's main immigration focus of recruiting immigrant professionals to satisfy the demand for skilled workers in certain occupational fields and the actual practice of employing these professionals in these fields. While Canadian immigration policy indicates that immigrants must have certain qualifications prior to entering the country, many immigrants have expressed frustration that these very credentials are not recognized upon arrival. Denis Mathew, an

immigrant educated in India, describes the non-recognition of his Master's in Business Administration degree as a "criminal waste of [his] knowledge and experience" (Globe and Mail, 31 January, 2007).

Changes to the immigration selection process have affected individuals who immigrate under the skilled worker admission class. In 2003, Citizenship and Immigration Canada (CIC) determined that the "General Occupations" list will no longer be used when assessing immigrants applying under the skilled worker category. Citizenship and Immigration Canada has instead placed greater emphasis on human capital factors such as level of education and language proficiency. An immigrant's specific intended occupation is now less important to his or her admission to Canada than his or her general skill set and education. This change is defended as a means to aid immigrants who have difficulties meeting all of the Canadian requirements before their arrival. This strategy is also touted as a means to help Canadian employers who do not necessarily require employees who already have work experience "to meet the same entry requirements as new entrants to the job market" (Boyd and Thomas, 2002:94). While this policy alteration might alleviate the criticism that the objectives Canada's immigration program have not been met, it also neglects to address the need for change in the process of foreign credential recognition. As opposed to changing the policy to facilitate the employment of qualified immigrants in professional occupations, this policy change takes the pressure off of the government in addressing the difficulties immigrants experience when attempting to gain employment that matches their training. This burden is instead transferred to immigrants, implying that they must find a way to fit their set of flexible work skills into the Canadian labour force. Due to this issue, provincial nominee programs which connect immigrants to specific occupations are becoming more relevant. This program allows provinces to nominate "individuals and their families for permanent resident status based on a pre-approved job offer" within the give province (Government of Ontario, 2009). While encouraging a range of work skills among immigrants is not a negative thing, it still does not address the problem that immigrants encounter when attempting to obtain recognition of their foreign credentials in Canada, particularly for those who are trained in regulated occupations.

The frustration and economic pressures experienced by many immigrants upon arrival in

Canada often result in their employment in a "survival job" (Sparks and Wolfson, 2001:16). Many immigrants "resign themselves to low-paying survival jobs" while waiting for Canadian certification or in an attempt to acquire some type of Canadian work experience (Toronto Star, 18 June, 2006). These jobs are often transitory and are not in a person's intended field of employment. The need for immediate income upon arrival frequently leads to the employment of immigrants in jobs that are not only low-paying, but also demand a great amount of their time and energy. This often delays immigrants from engaging in the process of regulatory procedures for credential recognition and seeking employment in the field for which they are trained. Social networks through ethnic community ties sometimes help immigrants find employment in the "informal economy"; however, while jobs in this economy are beneficial for some (for example, small entrepreneurship), they are usually serve as a "means of survival in a strange social environment" (Portes, 1995:30; Reitz and Banerjee, 2007; Nee and Sanders, 2001; Portes, 1995).

Employment in a job solely as a means of obtaining an income is typically a source of stress, negatively affecting an individual's well-being. While working in a job that is of no interest to an individual is discouraging to most, it may be particularly frustrating for those who are highly qualified but unable to find appropriate employment. Immigrants whose credentials are not recognized by employers and professional organizations may suffer from some mental and emotional anguish as a result (Brouwer, 1999; Mata, 1999). Brouwer (1999:6) suggests that unrecognized credentials may lead to anything from a loss of their skills due to lack of use to the "loss of technical idiom and diminishing confidence in one's abilities". In addition, immigrants often "jump" from one survival job to the next resulting in a cycle of low-paying, low-skilled employment. An extended cycle of underemployment could further hinder an immigrant's chances of obtaining employment in his or her intended occupation.

In sociological terms, the issue of under-recognition of professional qualifications may be considered as an occurrence of status inconsistency, or lack of "status crystallization" (Lenski, 1954:405). The concept of status inconsistency recognizes that uniformity between a person's various

statuses is an important part of his or her sense of fulfillment. As a concept, status inconsistency alerts us to the possibility that individuals who are employed in jobs for which they perceive themselves as over-educated or over-trained may feel a lack of fulfillment in their employment. Subsequently, the individual who experiences inconsistency between his or her training and employment then perceives a loss in his or her social status due to underemployment. This may be a potential explanation for why immigrant professionals who are trained and educated in a particular area of the occupational sector may not be satisfied with their employment if they obtain a job in a different area, even if they are receiving a similar level of income. Therefore, the phenomenon of underemployment among immigrants can be detrimental as they may feel that their expertise is not recognized, and consequently not appreciated, by their new country.

Previous Literature: General Findings

Literature examining the occupational attainment of immigrants to Canada focuses on the issue of foreign credential recognition (e.g. Chui et al., 2004; Li, 2001; Reitz 2001a; Mata, 1999; Basran and Zong, 1998; McDade, 1988). This literature will be discussed in further detail in Chapter Three. Within the growing amount of research on the non-recognition of foreign credentials, a greater concentration on immigrant professionals specifically appears to be emerging (Boyd and Thomas, 2002; Couton, 2002; Boyd and Thomas, 2001; Brouwer, 1999; Mata, 1999; Basran and Zong, 1998). Some studies identify deficiencies in human capital such as proficiency in an official language (English or French) or lack of Canadian work experience as at least partially responsible for employment difficulties among immigrants (Reitz, 2001a; Reitz, 2001b; Thompson, 2000). Other research asserts that obstacles to employment that are experienced by immigrants are due to structural barriers which systematically exclude some immigrants from entry into a profession by devaluing their foreign credentials (Bauder, 2003; Li, 2003a; Pendakur and Pendakur, 2000; Basran and Zong, 1998; McDade, 1988). Wald and Feng (2008:476) find that immigrants face a "larger earnings disadvantage from overeducation than the Canadian-born" and that recent immigrants are particularly affected by this. Licensing bodies of certain professions are often accused of this type of practice. However, while

immigrants frequently perceive that their credentials are being devalued in the Canadian labour market, others have determined that immigrants who hold a foreign degree fare better in terms of earnings than immigrants with equivalent degrees. This advantage is found to be greater than the earnings differentials between people with Canadian degrees and Canadian-born individuals without equivalent degrees. Thus, while immigrants with foreign degrees may experience greater difficulty in the labour market than those with Canadian degrees, they do obtain greater rewards to their degrees than non-degree holding immigrants compared to the difference in returns between Canadian-born degree and non-degree holders (Ferrer and Riddell, 2008; Aydemir and Skuterud, 2005).

Boyd and Thomas (2002) discuss the regulations associated with entering the engineering profession, asserting that immigrants have more difficulty in obtaining jobs that involve some element of public safety. Concentrating specifically on civil engineers, they note that if educational or professional credentials that are obtained from a foreign country differ significantly from those required in Canada, regulatory bodies may be justified in requesting the re-certification of immigrants. However, Boyd and Thomas (2002) assert that, for those immigrants whose engineering credentials are similar to those obtained in Canada, a request for re-certification may be interpreted as a discriminatory action. Under this assumption, it may be argued that foreign credentials are less valued or recognized if the occupation requires higher levels of skill or public involvement (i.e. the public is more at risk if the job is done incorrectly). In their study of perceptions of task competence, Foschi and Buchan (1990:9) found that white men "accepted less influence", or direction, from a non-white person as opposed to a white person in a position of authority. Bringing this notion to a more general level, one might argue that the perceived abilities of a particular minority group affect the ease with which an immigrant can obtain employment in a highly skilled or high status job.

From the viewpoint of the discrimination thesis, employment difficulties for immigrants may be at the systemic or individual level due to either employers' unfamiliarity with their qualifications or employers and regulatory bodies doubting the competence and abilities of immigrants from certain regions of the world. At some point both individual and institutional factors likely contribute to the

employment status and economic position of immigrants; however, other factors, both social and economic, have also been found to influence these outcomes. The discrimination perspective is one of the approaches currently being used within the stratification literature that examines immigrants. This approach primarily identifies inequitable practices that may be based on various ascribed characteristics (e.g. race, country of origin). This perspective "attributes the inferior position of some … minority groups to the socio-economic structure of society" which not only excludes, but also deters minority groups from actively participating in "mainstream" society (Hou and Balakrishnan, 2004:274). With respect to the occupational attainment of the immigrant population, this can mean difficulties in identifying job opportunities or resources that would aid in obtaining appropriate employment. Reitz and Banerjee (2007) find that visible minority groups often report perceived discrimination with Blacks reporting discrimination at a higher rate than other visible minority groups.

Some studies have found that the period effects, based on the year of migration, affects immigrants' economic success (Picot and Sweetman, 2005; Aydemir and Skuterud, 2004; Frenette and Morissette, 2003; Kazemipur and Halli, 2001; Reitz, 2001b; Thompson, 2000). The main issue with one's year of migration concerns the state of the economy at that particular time. That is, if the nation is in a period of recession, immigrants will have more employment problems than if the economy is in a "boom" period. All of the studies report similar findings regarding the effect of the period of migration in Canada: employment opportunities and earnings levels for immigrants upon arrival have declined since the beginning of the 1970s, with a particularly detrimental impact to those arriving in the early 1990s (Reitz and Banerjee 2007; Aydemir and Skuterud, 2004; Frenette and Morrisette, 2003; Kazemipur and Halli, 2001; Thompson, 2000). This may also be related to the changes in Canada's immigration policy in the 1960s which increased the amount of immigrants migrating from non-European countries over the subsequent years (Reitz, 2006). Although factors that are embedded within the economy, or structural factors, are important to studying between-cohort differences, the following analyses do not measure such a factor as the sample represents individuals who immigrated to Canada within the same year. Unemployment rates within this time period were relatively constant

and therefore not useful to the analysis of this population.

Within the studies that have been reviewed, some key variables emerge as fundamental to the study of immigrant success in Canada's labour market. Education is a major focus of most studies in this area. The review of studies concludes that immigrants suffer from a devaluation of their non-Canadian degrees within the labour force (Aydemir and Skuterud, 2004; Kazemipur and Halli, 2001; Reitz, 2001a; Thompson, 2000; Pendakur and Pendakur, 1998). Similar to the findings on returns to foreign education, some studies have determined that foreign work experience also receives lower financial returns than Canadian work experience (e.g. Aydemir and Skuterud, 2004; Reitz, 2001a). This finding is consistent across studies of earnings and occupational attainment. In addition, visible minority status is found to be an important factor in most studies, although to varying degrees (e.g. Chui et al., 2004; Kazemipur and Halli, 2001; Li, 2000; Thompson 2000; Lian and Matthews, 1998; Pendakur and Pendakur, 1998). Varying results are also found regarding the effect of language proficiency in an official language, although most conclude that English or French language proficiency aids immigrants' employment success in Canada (e.g. Grondin, 2007; Chui et al., 2004; Kazemipur and Halli, 2001). Region of origin also emerges as an important variable primarily within the studies that focus on occupation as their main variable of interest (e.g. Chui et al., 2004; Thompson, 2000).

Contribution to the Field of Study

While there is a large amount of research that has been done in this field, there are some deficiencies that this study will attempt to address. The shortcomings of this literature include how the immigrant population itself is treated as a group of interest, an over-reliance on earnings as the sole indicator of employment success, and the predominance of the analysis of cross-sectional data, most often from the Canadian Census. This study attempts to fill these gaps in the literature to varying degrees.

In many previous studies researchers have represented immigrants to Canada as a fairly homogenous group, usually through a comparison between the earnings of the foreign and the native-born (e.g. Frenette and Morissette, 2003; Pendakur and Pendakur, 1998). Although some of this

research differentiates the immigrant population according to general regions of origin or visible minority status, the comparative focus between immigrants and native-born Canadians neglects to acknowledge that the employment process of immigrants is unique to this particular population, regardless of their similarities in terms of human capital characteristics. My analysis focuses on the immigrant population itself, recognizing the differences within this population and comparing their employment experiences accordingly. Specifically, this research study examines the process of the employment success of a recent cohort of immigrants who arrived in Canada between 2000 and 2001.

The economic integration of immigrants has also been dominated by research focusing on either earnings (e.g. Goldmann et al., 2009; Aydemir and Skuterud, 2004; Pendakur and Pendakur, 1998; Lian and Matthews, 1991) or case studies of particular immigrant or occupational groups (e.g. Grondin, 2007; Chui et al., 2004; Boyd and Thomas, 2002; Boyd and Thomas, 2001; Basran and Zong, 1998). The studies that focus on earnings exclusively tend to measure this variable in numerous ways, ranging from individual earnings to "low income cut-off" designations (e.g. Kazemipur and Halli, 2001; Pendakur and Pendakur, 1998; Lian and Matthews, 1991). Because there is "no ideal measure of income for the purposes of measuring inequality", it is difficult to use the findings of these studies comparatively (MacLachlan and Sawada, 1997:387). In addition, from a sociological perspective, one's income is not associated as strongly with an individual's social identity as much as one's occupation contributes to his or her sense of self. This is evident in the following quotation from Stephen Connor, a career consultant who works with immigrants in Toronto: "The foreign doctors don't want to 'at least earn a living' in the health care field...[what] they want to be are doctors, pure and simple" (Toronto Star, 10 May, 2004).

Occupation and skill level are examined to some extent in studies that investigate indicators of economic success for the immigrant population (e.g. Grondin, 2007; Chui et al., 2004; Thompson, 2000); however, the level of occupational classification is typically very broad. Of the occupational studies that look at the issue quantitatively, general occupational groupings according to skill type or skill level are used (e.g. Chui et al., 2004; Thompson, 2000). Of primary concern to these studies is the

equivalence (or lack thereof) between an immigrant's occupation and skill level at pre-migration and post-migration. One problem with this approach is that an immigrant's pre-migration employment may not be the type of employment that he or she seeks upon immigration, particularly if he or she immigrates shortly after receiving a degree or diploma. Acknowledging this potential difference, this research instead focuses on whether immigrants obtain employment that matches their intended occupation upon immigration. In addition, Reitz (2001a:17) notes that the occupational groupings used in previous studies to measure immigrant employment success are typically very "broad and may hide some skill variations". The need for more refinement of the measurement of immigrant employment success is also noted by those who provide employment services to immigrants. Allison Pond, executive director of ACCESS Employment Services states that knowing the employment rates of immigrants is not useful because "it doesn't tell us if they're entering jobs that are related to their skills and experience" (Toronto Star, 5 March, 2008). Thus, this study also contributes to a more useful understanding of immigrants' employment success in Canada based on narrower, more specific levels of occupational classification (i.e. the unit group and major group level of the National Occupational Classification).

An alternate approach to studying earnings and employment in the general immigrant population has also been employed through the use of case studies. This type of research allows for a greater understanding of the occupational attainment for specific groups of immigrants. While some studies focus on one or two immigrant groups that share a region of origin (e.g. Man, 2004; Basran and Zong, 1998), others examine immigrants trained in a specific occupational group (e.g. Boyd and Thomas, 2002). Although these studies allow for a better notion of the employment problems of a specific group's experiences, it is unable to address the process of immigrants' employment issues on a broader scale. A wider perspective is required to account for the time that is often needed to adjust to the employment process of a new country, as well as to be inclusive of a variety of occupations and immigrant groups. This study provides data from both perspectives. While the majority of this research focuses on the general immigrant population, Chapter Ten provides a case study of

immigrants from the original sample who intend to work as engineers in Canada. This case study is a means of obtaining some information on the experience of immigrants who must undergo the process of licensing through regulatory bodies. It also allows for some degree of comparison between the predictors of employment success for the general immigrant population and for the sub-sample of engineers.

Of those studies that incorporate both earnings and occupation into their analyses, similar approaches to these variables are taken. The rationale behind the use of the two variables is instructive in understanding the simultaneous use of earnings and occupation. Reitz (2001a:12) notes that in order to identify earnings disadvantages, one must also consider their relation to the "under-utilization of skills in specific occupations". Therefore, in order to study the general issue of underemployment among highly-trained immigrants, an earnings analysis should be compared with the various skill levels of occupational categories. In this respect, the analysis of both earnings and occupation level may be beneficial in obtaining a full picture of immigrants' success in the labour market. By examining earnings only, results could show "success" in terms of a high salary, but they would not necessarily indicate one's success in obtaining the occupation for which he or she is trained.

This research project attempts to gain a more complete picture of the "employment success" of immigrants. The primary focus of this research is on immigrants' employment success as a process, accounting for up to nine jobs held within Canada. The analyses exploits the longitudinal data available in Statistics Canada's Longitudinal Survey of Immigrant to Canada (LSIC) by examining both the likelihood of obtaining a job match over one's first two years in Canada and the rate at which immigrants obtain employment in their intended occupations upon migration. Changes in immigrants' incomes and occupational prestige scores between their first jobs and most recently held jobs in Canada are also examined in an effort to identify what factors affect occupational mobility for recent immigrants to Canada. The measurement of both income and occupational prestige also allows for a comparison between the two concepts. If there are different effects of explanatory variables on income and occupational prestige, this may indicate problems within an occupational field. For example, if

visible minority status affects immigrants' incomes but does not affect immigrants' occupational prestige score, this may indicate that there is a significant difference between visible minority and non-visible minority immigrants in terms of their incomes despite there being no difference in obtaining employment in their intended occupations. This could be a result of discriminatory practices such as being overlooked for promotions.

Another prominent characteristic of the existing research in the area of immigrant employment is the considerable reliance on the Census of Canada as a principal data source. This is particularly prevalent in studies that focus on earnings differentials. While the use of census data may be helpful in comparing specific results at different points in time, it also limits the various characteristics that may be tested. A longitudinal approach provides a more thorough investigation of the employment process of immigrants. Some previous studies have used a "quasi-longitudinal" approach to studying change in the economic integration of immigrants (Bloom et al., 1995:992). These studies examine a series of cross sectional surveys (typically census data) which are pooled over different years. Thompson (2000) uses this approach by merging two census data sets in a study that examines the occupational attainment of immigrants to Canada. While this method allows for a sense of change over time, it is a problematic approach for this study as it does not allow for the identification of changes in the same individuals over different years. This aspect of longitudinal microdata is useful for this study as it provides specific data with which a recent cohort of immigrants can be studied. In particular, these data are useful in that they allow one to track the different employment that these immigrants have held throughout their time in Canada. The use of a longitudinal data set for the same sample of the population, such as the LSIC, provides more accuracy and reliability for this type of research problem, allowing for an account of individuals' employment experiences over time (e.g. accounting for changes in jobs to identify whether a job match has occurred within the observed period). In addition, the use of longitudinal microdata resolves some of the problems that quasi-longitudinal studies encounter. For example, quasi-longitudinal studies are problematic in that the populations from which the samples are drawn change over time. This is particularly problematic in studying the immigrant population due to

changes in source countries and out-migration during different time periods. By contrast, longitudinal microdata allow for an examination of changes by tracking the same group of individuals over time, thus preventing the effects that major changes in the greater population may have on the analyses.

The following analyses utilize the Longitudinal Survey of Immigrants to Canada which includes two waves of the survey, covering approximately two years (2001-2003). The use of longitudinal data is more relevant to the study of the occupational attainment of immigrants than cross-sectional data as it allows for an examination of the process of gaining employment in one's intended occupation. A common assumption is that it will take immigrants, particularly those who are professionals, a certain amount of time after arriving in Canada to obtain appropriate credential assessment, approval of their credentials, and possibly retraining. In this case longitudinal data are not only beneficial for tracking the amount of time it takes to gain access to one's intended profession, but also in allowing researchers to track characteristics of the process itself. Very few quantitative studies have employed the use of this type of approach in the past, primarily due to a lack of high quality longitudinal data sets. Researchers who have recently studied the economic integration of immigrants longitudinally have primarily focused on comparing earnings trends of immigrant and Canadian-born populations (e.g. Corak, 2008; Hum and Simpson, 2007; Li, 2003b), employ the longitudinal data in a cross-sectional manner by examining information within each wave of the study (Grondin, 2007), or report solely descriptive data (Galarneau and Morissette, 2008; Picot et al., 2007; Schellenberg and Maheux, 2007; Chui and Tran, 2003a, 2003b;). Some longitudinal research on immigrants' economic integration has also examined inter-generational mobility (e.g. Corak, 2008). This research accounts for the employment experiences of a cohort of recent immigrants to Canada and explains variance in outcomes within the models in an attempt to determine what factors affect whether some immigrants experience greater employment success than others.

Another contribution made by this research is an examination of how occupational tasks associated with an immigrant's intended occupation may affect his or her employment success. Current research on the subject of immigrant employment often concentrates on a few particular professions,

but does not address whether the tasks associated with certain professions, or the aptitudes required to perform them, might obstruct immigrants from obtaining employment in their chosen fields. This study will examine whether the complexity of occupational duties affects the ease with which immigrants can attain employment in their intended occupation. The inclusion of specific job traits and "aptitudes" (as identified by Human Resources and Skills Development Canada [HRSDC], 2006) required for occupations is unique to this field of study as potential explanatory factors in gaining employment in one's intended occupation. The logic behind including these characteristics is the notion that immigrants may face more obstacles when attempting to gain employment in occupations that have higher aptitude levels or levels of responsibility, a higher interaction with people, or higher socioeconomic status (SES) scores. If such relationships are found within the data, one might argue that immigrants seeking occupations with highly complex job tasks experience social closure. Such findings would also be in accordance with the discrimination thesis, indicating that Canadian employers are less willing to trust immigrants with jobs that require greater skill or "risk" to society. The theory of social closure is also investigated with respect to the status of immigrants' intended occupations; if immigrants seeking occupations with a high SES score have less employment success than those with lower SES scores, this can also be indicative of exclusionary social closure.

Overview of the Study

Through the use of the Longitudinal Survey of Immigrants to Canada (LSIC), this project aims to fill gaps in the existing literature, primarily by examining multiple dimensions of employment success of recent immigrants over time. This study also measures whether immigrants obtain employment that matches their intended occupations at the four core levels of occupational classification within the National Occupational Classification (i.e. unit group, major group, skill type, and skill level). While the proposed study does include a measurement of income (weekly wage), a commonly used variable of interest, it also addresses factors that have received little attention within the field of immigrant employment such as occupational prestige and how differences in occupational tasks and aptitudes may affect immigrants' success in gaining employment for which they are trained. By examining the

potential influence of the job characteristics of immigrants' intended occupations, information regarding the likelihood for obtaining a job in various types of occupations can be obtained. In particular, the examination of whether immigrants who intend to work in high-status jobs have greater difficulty obtaining a job matching their intended occupations provides a greater understanding of whether exclusionary social closure is experienced by immigrants throughout their employment process. Also, a more concentrated study of immigrants seeking employment in regulated professions (as engineers) provides useful data on immigrants' employment success in occupations that involve licensing procedures.

The primary objective of this study is to determine whether ascribed and demographic factors, human capital factors, and job characteristics affect the likelihood (through logistic regression analysis) and the rate at which (through event history analysis) immigrants find employment in their intended occupations upon migrating to Canada. The ascribed and demographic factors and human capital factors are also be included in separate Ordinary Least Squares (OLS) regression analyses to determine their effects on changes in immigrants' income and occupational prestige since immigrating. Generally, these models have been constructed in an attempt to both integrate different theoretical approaches and explain variance in employment outcomes within the immigrant population. The various independent and intervening factors that are examined in the statistical models have been grouped according to theoretical assumptions. Ascribed, demographic, human capital, and occupational characteristics are studied as potential predictors of immigrant employment success.

Overview of the Following Chapters

The four chapters that immediately follow Chapter One introduce the theoretical perspectives (Chapter Two), previous literature (Chapter Three), research questions and hypotheses (Chapter Four) and methodology (Chapter Five) utilized in this study. All of these chapters provide the basis for understanding the development of the statistical models used for the data analyses and for interpreting the subsequent results. Chapter Six provides descriptive data about the sample used for these analyses. Detailed information about the distribution of the variables of interest can be found in this chapter.

Chapter Seven provides the results of the logistic regression models. Four models are presented representing the likelihood of obtaining a job match at the four levels of occupational classification identified in the National Occupational Classification. Results from the event history analyses can be found in Chapter Eight. Four separate Cox proportional hazards models are presented that indicate the effects of various factors on the rate at which a job match occurs (also referred to as the "hazard rate"). Ordinary least squares (OLS) regression models are presented in Chapter Nine, indicating the effects of the explanatory variables on the occupational prestige scores and incomes (measured by weekly wage) of immigrants' jobs in Canada. Results from the engineer sub-sample are provided in Chapter Ten which includes a logistic regression model measuring the likelihood of obtaining a job matching the unit group level of their intended occupations and regression models indicating factors that affect the occupational prestige scores and wages associated with their most recently held jobs in Canada. Chapter Eleven provides a discussion of the results as they pertain to the theoretical perspectives used to inform this study. The concluding chapter, Chapter Twelve, addresses how the findings have informed the research questions, discusses the theoretical and policy implications of the findings from this study, and offers suggestions for future research directions.

Chapter Two

Theoretical Perspectives

Many perspectives explaining immigrant integration and stratification along either ethnic or racial lines have been developed in social theory, but Anderson and Frideres (1981:3) assert that few attempts have been made to form an "integrated framework" with which to study ethnic relations in Canada. This is primarily due to different levels of theorizing and the interdisciplinary nature of research on race and ethnic relations. Because studies in this area have been conducted by researchers representing various disciplines (e.g. sociology, economics, geography), this has also led to differing theoretical approaches in this field (Anderson and Frideres, 1981). Studies of ethnic relations are also particularly complex within Canadian society due to the numerous ethnic groups that coexist. Similarly, with the increase in immigrants arriving from various non-traditional source regions, numerous racial groups are also represented in Canada. Anderson and Frideres (1981:10) point out that, while most ethnic groups are recognized as "minorities" at the national level, many represent a "majority" population at the local and regional levels. This issue was also discussed more recently by Pendakur with specific reference to racial visible minority groups (2005). Therefore, differences in the integration and economic success of certain groups within the greater population may exist.

These issues have caused the hypotheses and subsequent data modeling for this research project to be informed by various theoretical approaches. Because immigrant integration is affected by many different factors, each theory can potentially explain different facets of the process of the economic integration of immigrants. Previous research has generally focused on either individual or institutional barriers to explain difficulties in the economic integration of immigrants. However, most studies do at least acknowledge the potential influence of the type of barrier that is not their main research focus on immigrants' employment success in Canada (e.g. Reitz, 2001a; Basran and Zong, 1998).

Studies that represent the "individual barriers" approach are primarily rooted in human capital theory (e.g. Reitz, 2001a; Reitz, 2001b; Thompson, 2000). Human capital theorists generally explain

the employment obstacles experienced by immigrants as the result of the disparity between the quality and relevance of foreign credentials and Canadian credentials. The human capital approach focuses on achieved characteristics such as educational credentials and work experience to explain differences in occupational attainment between individuals. In practice, the assumptions of human capital theory are applied when individuals with greater human capital obtain greater labour market rewards (e.g. income) than those with lower levels of human capital. While the quality of foreign work experience may be similar to Canadian work experience, many immigrants report that they "must have Canadian experience" to obtain employment in their intended occupations (Globe and Mail, 31 January, 2007; also discussed in Man, 2004 and Basran and Zong, 1998). From the perspective of this theory, Canadian experience is considered a higher form of human capital than foreign experience. This attitude is manifested as an institutional barrier that immigrants face when attempting to obtain employment in occupations for which they are qualified. Thus, if immigrants' human capital is similar to that obtained in Canada and they still face barriers to obtaining employment for which they are qualified, this would indicate a dysfunctional system.

The "institutional barriers" approach is also commonly found in research that examines difficulties in immigrants' economic integration (e.g. Pendakur and Pendakur, 2000; Basran and Zong, 1998; McDade, 1988). This perspective contrasts the "individual barriers" approach by focusing on those obstacles that are related to the "control of entry to the professions [that have] caused the systematic exclusion" of immigrants in the Canadian labour force (Basran and Zong, 1998:9). While measures have been taken by the Canadian government to make the licensing procedures of regulatory bodies more transparent, immigrants who seek employment in non-regulated professions may suffer from discriminatory hiring practices which include the devaluation of their foreign credentials. Some have identified the employment problems faced by these immigrants as a "failure of the community of people who hire" (Globe and Mail, 31 January, 2007). Issues such as the devaluation of foreign credentials and systemic discrimination are often examined through the "institutional barriers" perspective. This study accounts for both the "individual barrier" and "institutional barrier"

perspectives by utilizing variables that represent each one. The notion of "racialized barriers" is also studied in this research by examining whether visible minority immigrants have significantly different employment success than non-visible minority immigrants. With this in mind, the different theoretical approaches that inform this study need to be situated within the larger theoretical context of social inequality.

This section begins with a discussion of Davis and Moore's (1945) functional theory of stratification in order to address the basic question of why societies are stratified. Discussion of the functionalist theory also explains how it has informed the human capital approach in studies of the economic integration of immigrants. Weber's (1946) notion of social stratification then follows with particular attention given to his theory of social closure. Parkin's (1979) elaboration on this theory is also addressed. General theories of racial and ethnic stratification follow this discussion. The chapter concludes with an overview of perspectives directly related to Canadian society.

Theories of Social Stratification

Central to the study of social stratification is an understanding of how and why societies develop differential treatment of various social groups. Hunter (1986:4) asserts that the main goal of theorizing social inequality should be to identify "the changing process of 'who gets what, when, and how'". Many theorists in sociology have been primarily concerned with issues of class and status, identifying stratification as a process in which individuals (or groups of individuals) interact and have "achieved some critical difference in possessions or performance" (Boskoff, 1969:253). Stratification thus develops from these interactions as a result of power differences.

The Functional Theory of Stratification

Davis and Moore (1945), in their functionalist approach to social stratification, assert that in order to understand *how* individuals obtain their positions in society one must first attempt to explain *why* different statuses are assigned to these differing positions (1945:242). Davis and Moore (1945:242) explain the "why" of the prior statement as a way in which societies can "distribute its members in social positions and induce them to perform the duties of these positions". In order to fulfill these

objectives, a society needs to develop a system in which certain people want to pursue specific positions. These individuals must also have a desire to perform the duties required of that position. Davis and Moore (1945:242) assume that all societies are stratified in some way and attempt to explain the "universal necessity" that creates stratification in a society.

The "universal necessity" of stratification refers to Davis and Moore's (1945) assertion that every society has some degree of task specialization or division of labour. In order to fill these various positions with qualified workers, people receive differential "rewards" and rights according to the type of labour performed. Davis and Moore (1945:243) conclude that "rewards and their distribution become part of the social order," resulting in social stratification. They assert that more sought-after rewards must be offered in order to attract qualified people to the most "functionally important" positions. For Davis and Moore (1945), functionally important positions are those that demand a high degree of responsibility and that require talents or abilities that few individuals in a given society hold. The rewards a society offers to encourage people to pursue these positions can relate to things that provide "sustenance and comfort…humour and diversion…[and] self-respect and ego expansion", such as high salaries or a high level of respect from others (Davis and Moore, 1945:243). From this perspective, social stratification is "an unconsciously evolved device by which societies ensure that the most important positions are conscientiously filled by the most qualified persons" (Davis and Moore, 1945:249).

Davis and Moore (1945) have received a great deal of criticism of their theory on stratification. One of the most substantial critiques of their theory was by Tumin (1953). Tumin (1953) first questions the meaning of the term "functionally important" in reference to the ranking of positions in society. He also questions whether the distribution of differential rewards is the only manner in which talented individuals can be recruited into positions that are considered "functionally important". Tumin (1953) suggests that people may be motivated by other means (e.g. notions of social duty or service to society). Tumin (1953) and other critics (e.g. Wrong, 1959) also assert that social inequality does have some dysfunctional manifestations within society, the most important of which occurs when "able and

energetic individuals are prevented from competing for the most important" positions in society, thereby harming society in general (Wrong, 1959:778). This is particularly true of those whose credentials are not recognized.

Similarly, Tumin (1953) argues that a stratified society functions to encourage some to develop their potential to perform higher level positions while barring opportunities for others to develop their abilities. He asserts that systems of stratification typically have "obstacles to the further exploration of the range of available talent" in a society (1953:389). This would be particularly true for the untapped talents of highly skilled immigrants in Canada. Despite these criticisms, Davis and Moore (1945:243) assert that social inequality is in fact "an unconsciously evolved device" that has developed in an effort to fill the "important" positions in society with "the most qualified persons". In this respect they admit that every society has a "certain amount of institutionalized inequality" (Davis and Moore, 1945:243). The question that arises from this assertion, particularly with respect to the experience of immigrants in Canada, is whether the "most qualified" individuals are in fact filling these important positions.

A useful contribution of the Davis-Moore thesis is the suggestion that social stratification is based on principles of merit. Although there is a differential distribution of rewards, meritocratic societies claim that all individuals have an equal chance at acquiring these rewards through effort and ability. Davis and Moore (1945) suggest that individuals who are motivated to pursue the rewards offered by "higher" positions, and who are willing to sacrifice to obtain these positions (e.g. going through a long training period), are generally rewarded by society.

This is a particularly important issue with respect to the study of the occupational attainment of immigrants. One can see the assumptions of Davis and Moore's (1945) theory embedded in Canada's immigration policy, the main purpose of which is to select immigrants who represent high levels of education and training to fill occupations that require high levels of skill and education. The notion of obtaining entrance into occupations based on principles of "merit" (i.e. educational credentials or specific training) is also an accepted principle in Canadian society, although it may be more apparent in theory than in practice. The Davis-Moore thesis can then provide an interesting interpretation of

difficulties that qualified immigrants encounter when gaining entry to occupations in Canada. Although Davis and Moore (1945) only develop their theory in reference to individuals born into a particular society (i.e. their theory does not address the situation of immigrants), they do note that the incorporation of new individuals in the labour market (i.e. young workers) "must somehow be arranged and motivated" (1945:242).

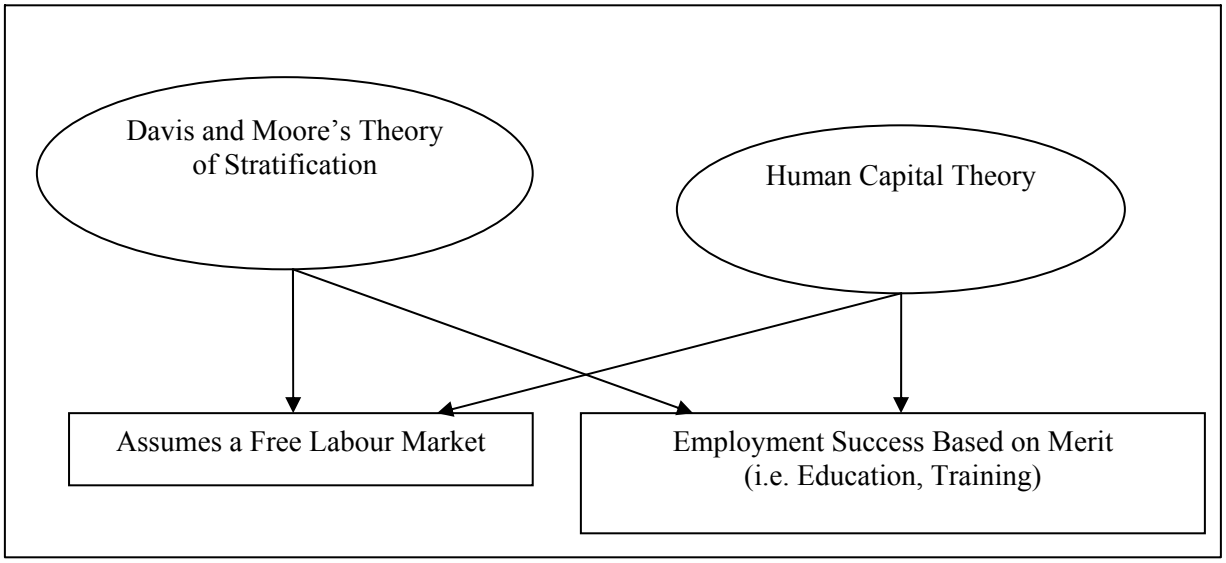
A society that is unable to place qualified individuals in the field for which they are trained may be identified as "dysfunctional" or inefficient according to this theory. This is particularly true for individuals seeking employment in a highly valued profession that does not have an adequate number of individuals to fill a society's need (in Canada, a good example of this would be physicians). In this respect, the "scarcity of personnel" is not due to a lack of talent or motivation to conscientiously perform the duties associated with the position (Davis and Moore, 1945:244). Weber's (1968) notion of social closure, discussed at length below, may also be at work at the same time. This is described by Tumin (1953:389) who notes that "…there is some noticeable tendency for elites to restrict further access to their privileged positions, once they have sufficient power to enforce such restrictions". Tumin (1953) also points out that these elites are able to manipulate the level of demand and rewards for a particular group by restricting the numbers who are allowed access.

The functionalist theory presented by Davis and Moore (1945) is similar to human capital theory, found in several studies of immigrant economic integration (e.g. Reitz, 2001a; Thompson, 2000; Wanner, 1998). Both Davis and Moore (1945) and the tenets of human capital theory assume that the labour market is an open system in which "everyone with similar qualifications competes on the same basis for available jobs" and that employment success in based on merit (Lowe, 2004:150). Those with the highest degree of "human capital", that is, a high level of education, training, or other abilities specific to the job, will be rewarded with the position. Refer to Figure 2.1 below for an illustration of the relationship between these two theories.

Similar to Davis and Moore's (1945) argument, human capital theory argues that the "rewards" associated with an occupation are related to the level of its "economic contribution to society" (Lowe,

2004:150). This theory does not account for discriminatory actions in hiring practices or systemic discrimination. Human capital theorists argue that individuals who are unable to obtain employment in their intended occupations have credentials or qualifications that are not equivalent to those of individuals who are employed the same occupations, or that others competing for the same occupation have greater human capital. This theoretical perspective does not account for the effects of unequal power relations (Lowe, 2004); therefore, it cannot by itself provide an adequate explanation for why some immigrant groups with high skill levels or credentials have difficulty obtaining positions suitable to their qualifications (Lowe, 2004).

Figure 2.1: Illustration of the Relationship Between Davis-Moore's (1945) Functional Theory of Stratification and Human Capital Theory



Research that employs the human capital approach to examine the economic integration of immigrants discusses the poor transferability of some foreign credentials, as well as difficulties encountered due to low levels of English or French language proficiency and a lack of Canadian work experience (Basran and Zong, 1998; Thompson, 2000). The human capital perspective suggests that immigrants need to attempt to acquire equivalence in terms of Canadian standards, including retraining or further education (Basran and Zong, 1998). Although the "individual" approach to understanding employment barriers may explain some issues of personal difficulties experienced by professional

immigrants in gaining credential recognition, it neglects to address the policies and evaluation procedures that "contribute to occupational disadvantages for foreign-trained professionals" (Basran and Zong, 1998:9). Ignoring these issues within the social structure seemingly "blame[s] immigrant professionals themselves" for their inability to find employment in their chosen occupations (Basran and Zong, 1998:9). It is likely due to this oversight that many studies employing variables that represent individual barriers, such as language proficiency, also account for institutional influences to some extent.

Human capital theory informs the statistical model in this study in several ways. First, human capital factors such as an individual's level of education and official language proficiency are prominent in determining which individuals are selected as immigrants to Canada. Immigration policies focus on these factors and are developed with the belief that high levels of human capital will ease the transition of new immigrants into the Canadian labour market and satisfy the need for skilled workers in the labour force. Second, human capital factors are included in this study because they have been found to be important in explaining employment success among the general population (especially regarding returns to education), and likely have some influence on immigrants' employment success. In addition, examining the relationships between human capital factors and employment success may provide an indication of discrimination. Herberg (1990) states that in order to identify discrimination as it relates to individuals' qualifications, the researcher must test the links between education, occupation, and income. The relationship between these three factors may indicate discrimination if some minority groups have low occupational attainment and low income despite a high level of qualifications.

Weber's Theories of Social Stratification and Social Closure

In his essay, *Class, Status, Party*, Weber (1946) develops his well-known multi-dimensional theory of stratification to address the complex nature of power relations within society. Weber (1946:180) states that it is "the structure of every legal order" that affects how power is distributed within a society. Power is defined as "the chance of [an individual] or of a number of [individuals] to realize their own

will in a communal action" even if others challenge this action (Weber, 1946:180). Weber (1946) identifies three separate, though often interacting, sources of power in a society. These powers are identified as economic (classes), status groups, and parties. Weber (1946) uses these concepts to illustrate how individuals or social groups can be stratified according to differentiation along class, status group, or party lines.

Weber (1946) identifies class-based stratification as a result of those who have property and those who do not. Similar to Marx, Weber (1946:182) perceives this difference as "the basic category of all class situations", but Weber also acknowledges that there can be many differentiations within both of these general groups. Weber's (1946:181) view on individuals' class situation is a fairly objective one, emphasizing the economic order where "economic goods and services are distributed and used". Weber (1946:180) notes that individuals do not seek power solely for economic reasons, but are often driven to obtain the "social honour," or prestige, that power will bring. However, he (1946:180) is careful to note that social honour is not always a result of every type of power, "[nor] is power the only basis of social honour". This illustrates Weber's emphasis on the complexity and interactions between different types of power.

Weber's discussion about the power of status groups added a new facet to the study of social stratification. His (1946:187) notion of status group is closely associated with social honour, which is "normally expressed by the fact that … a specific *style of life* can be expected" for individuals who belong to a particular status group. Stratification based on status groups is related to a groups' control of "ideal and material goods and opportunities" which can include certain trades (Weber, 1946:191). Although "functional interests" dictate the economic order (i.e. the distribution and use of goods), the "status order" stratifies based on social honour and lifestyles specific to different status groups (Weber, 1946:192).

Weber (1946) differentiates between class-based and status-based stratification by identifying each type's relationship to material goods. While stratification based on class is determined by the "production and acquisition of goods", the stratification of status groups is based on "their

consumption of goods" in relation to their lifestyle (Weber, 1946:193). Despite this difference, the economic and social orders often interact and can be closely related. For example, Weber (1946:193) asserts that an occupational group can be a type of status group, as an occupation may be accorded a specific degree of social honour "by virtue of the special style of life which may be determined by it". However, the style of life associated with a particular occupational group is typically dependent on the income received from the work performed by individuals in that occupation, representing the economic order. This illustrates how occupational groups can be representative of both a class and a status group.

The third source of power identified by Weber (1946) is that of parties. Weber (1946:194) asserts that parties are primarily concerned with power, as their actions are "always directed toward a goal which is striven for in a planned manner". This type of power is usually distributed with respect to a party's ability to influence societal decisions (Boskoff, 1969:57). Parties may aspire to advance a cause or a particular program. Their goal may also be "personal". In this respect, the leader of the party, or a party's followers, attains honour from acquiring power (Weber, 1946:194). Weber notes that parties often aim to accomplish both of these goals concurrently. Parties may represent status or class groups, both, or neither (Boskoff, 1969:58).

Weber's contributions to the study of social stratification are thus rooted in the three types of power that he identified. By determining these distinct yet often overlapping aspects one can study stratification in any society by examining the unique effects of each as well as the interaction between the three processes (Collins and Makowski, 1998). Weber's theory of stratification provides a solid explanation of how different power dynamics can create social inequalities.

Research on the occupational attainment of different immigrant groups can be informed by Weber's approach. By acknowledging non-economic sources of power, one can examine the effects of other influences on immigrants' employment success such as discriminatory hiring practices. His (1946) examination of the role of status groups in exercising power over others is particularly useful when researching the subordination of immigrant groups. Weber's (1946) theory of stratification also

informs the notion of the "dominant" group in a society as one that has a great deal of economic resources, a high degree of status, and/or political power. Because the dominant group is primarily concerned with its own interests, social relations with those in control have defined boundaries.

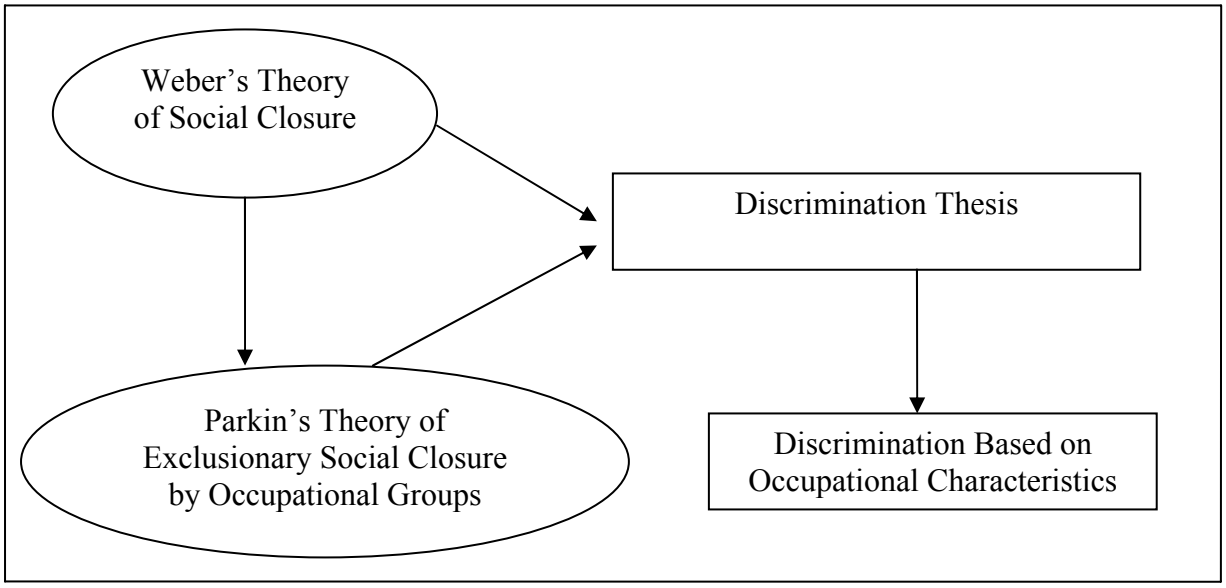
The act of dominant groups preventing the "entrance" of others into certain spheres of society is described by Weber's (1968) concept of social closure. Weber (1968:139) defines social closure as a process in which access to certain spaces or positions in society is "closed against outsiders so far as…participation of certain persons is excluded, limited, or subjected to conditions". The concept of social closure is defined as a "two-sided process" where one social group excludes others from "legal access to scarce and valued resources" or where they attempt to take these resources from other groups (Hunter, 1986:45).

It is Weber's (1968) concept of social closure that has particular relevance to the present issue of the recognition of foreign credentials. In *Marxism and Class Theory: A Bourgeois Critique*, Frank Parkin (1979) elaborates on Weber's exposition of the concept of social closure. Parkin (1979) uses this concept to explain how one group's exclusion of another is practiced to maintain the dominant group's privilege and social position. Parkin (1979:48) identifies two ways in which the dominant group can maintain its position within society. The first "main exclusionary device" is that which "[surrounds] the institutions of private property"; the second is to control institutions which determine academic and professional credentials.

The discussion of social closure provided by Weber (1968) and Parkin (1979) greatly contributes to the study of immigrants' economic integration. The assertion that the dominant group in society acts to maintain its power through limiting the resources of others may help to explain the difficulties experienced by immigrants when attempting to obtain a job in their field, particularly if it is a professional occupation. Because the labour market itself has a number of different status groups (i.e. different occupations), organizations that regulate occupations within the labour market act to create barriers to non-members. These same organizations may also aid members of a particular occupation in gaining economic opportunities. One example of this occurred in 1868 when dentists in

Ontario gained the ability to restrict the practice of dentistry through legislation (Adams and Welsh, 2008). By raising the standards required for entrance into the practice of dentistry and lengthening the education and training process, Ontario dentists were able to reduce the number of people in the profession thus allowing for greater economic rewards for practising dentists. This process has been identified by many researchers as "systemic" discrimination in which biased acts are built into the operation of an institution. Systemic discrimination can therefore be linked to Weber's theory of social closure in that the "dominant" group in society (whether that be an ethnic group, racial group or otherwise) excludes minority groups from equal employment opportunities. Refer to Figure 2.2 below for an illustration of this relationship.

Figure 2.2: Illustration of the Relationship Between Weber's Theory of Social Closure and the Discrimination Thesis



The discrimination perspective specifically identifies inequitable practices that may be based on factors such as race, ethnicity, or country of origin. This perspective "attributes the inferior position of some … minority groups to the socio-economic structure of society" which not only excludes, but also deters minority groups from actively participating in "mainstream" society (Hou and Balakrishnan, 2004:274). With respect to the economic integration of the immigrant population, this

can mean difficulties in identifying job opportunities or resources that would aid in appropriate employment. Regulatory parameters enacted by some professions can unfairly restrict individuals from gaining employment in the occupation for which they have been trained. For example, although immigrants trained as medical doctors may pass the medical exams required in Canada, many are unable to obtain a residency within Canada, a necessary requirement before one can work as a licensed physician, as only a limited number of these positions are available to foreign-trained physicians. One immigrant trained in family medicine found himself competing with 2,000 foreign-trained doctors for "just two hundred [residency] spots" in Canada and ultimately decided to move to the United States after being offered a position there (Globe and Mail, 19 April, 2005). Thus, these types of barriers may result in a loss of talented and qualified professionals in Canada.

At the systemic level, the discrimination perspective helps to explain the barriers that regulatory bodies may have in place that prevent immigrants from obtaining professional occupations. Anderson and Frideres (1981:208) elaborate on how institutional discrimination occurs:

> Bureaucracies have the job of establishing regulations and priorities as well as qualifications for particular positions in our society. Only those individuals able to meet these initial qualifications will be able to participate in the ongoing institutional structure.

Therefore, if the qualifications of certain individuals (or groups) do not satisfy the regulations determined by a bureaucracy, they are in turn excluded from that position in society. Boyd and Thomas (2002) assert that immigrants have greater difficulty obtaining jobs that involve some element of public safety. Concentrating specifically on civil engineers, Boyd and Thomas (2002) note that if the quality of educational or professional credentials obtained from a foreign country differs significantly from the quality of those required in Canada, regulatory bodies may be justified in requesting the re-certification of immigrants. However, if immigrants have engineering qualifications from a system that is similar to Canada's, such as the United States, one may question a request for re-certification as a discriminatory action (Boyd and Thomas, 2002). Under this assumption, it may be argued that foreign credentials are less valued or recognized if the occupation requires higher levels of skill or public involvement (i.e. the public is more at risk if the job is done incorrectly).

Discriminatory practices may also be present if immigrants are not hired based on employers' misconceptions of their task competence for the job tasks required. Foschi and Buchan (1990) examined the effect that ethnicity and gender have on perceptions of task competence and found that white men, when working with a non-white person, accepted less authority than when working with a white individual. Thus, discrimination by employers or the devaluation of credentials by regulatory bodies may be a result of a misperception of the abilities of particular groups, manifested at the societal level. Therefore, if the perceived competence of a particular minority group is lower than that of another, individuals from a group that are perceived as "more competent" would be able to obtain the job over those deemed "less competent".

A potential problem in solely using the discrimination perspective to study difficulties in immigrant economic integration is that it may not provide a full understanding of variations in immigrant employment success. Intervening variables such as level of education and work experience may also contribute to the economic integration of immigrants in Canada. However, when accounting for variables such as country of origin, the discrimination perspective may explain why immigrants from "traditional" source regions (e.g. North America) have easily recognized credentials, while others from "non-traditional" source regions (e.g. Africa) have a more difficulty gaining equal recognition of their foreign credentials and work experience. Thus the discrimination thesis is useful in explaining why immigrants who obtained their credentials in particular countries might be underemployed or underpaid despite having qualifications equal to those obtained in Canada. Because comparative measurements of the "quality" of credentials from different nations can be complex, it is difficult to account for these variations. Typically, equivalency is determined by degrees, diplomas, or work experience, all of which are examined in this research. The complexities of this issue are illustrated by research that examines the influence that immigrants' literacy abilities have on their employment success. Ferrer et al. (2006) find that when the returns to literacy skills are examined, native-born and foreign-born receive similar earnings. This finding is similar to that of Sweetman (2004) who concludes that that educational quality of immigrants' credentials (as measured by scores from

standardized international tests) largely influences their labour market outcomes. While these findings challenge the discrimination thesis, the discrimination perspective remains a useful perspective for understanding social relationships that seem to counter policy objectives and legislation pertaining to immigrant issues and equality. While the Canadian government has focused on human rights issues and the promotion of multiculturalism in an effort to address "structural discrimination in Canadian society", the discrimination approach can help to explain why immigrants may still encounter difficulties when seeking occupations for which they are qualified (Hou and Balakrishnan, 2004:274).

Theories of Ethnic and Racial Stratification

There are several theoretical contributions to the study of race and ethnic relations. The following section first addresses a general theory of the causes of ethnic stratification discussed by Noel (1968), followed by a discussion of the assimilation perspective that is primarily associated with Park (1950). A critique of Park's theory then follows, assessing it in relation to Canada's racial and ethnic relations. The last part of this section concentrates on contributions to the field of racial and ethnic stratification in Canada, with particular attention paid to Porter's (1965) "ethnically blocked mobility" thesis as an influential work in the development of Canadian studies in this field. This discussion also addresses the theoretical transition from viewing Canadian society as "ethnically stratified" to "racially stratified".

Noel's Theory of the Origin of Ethnic Stratification

Ethnic stratification is one type of social stratification that occurs when a characteristic of group membership is used to assign "social positions with their attendant differential rewards" (Noel, 1968:157). A notable attempt to address the causes of ethnic inequality is provided by Noel (1968). In his article, Noel (1968:157) outlines three factors that "constitute the necessary and sufficient basis" for the development of ethnic stratification in a society. These factors include ethnocentrism, competition, and differential power. Noel's (1968) theory argues that if any one (or more) of these factors does not exist in a given society, ethnic stratification will not emerge.

Noel (1968) explains that ethnocentrism, the belief that one's own group is superior to others, is a key element in ethnic stratification. The values and practices of one's own group are deemed more

important or "better" than that of other groups, resulting in "the rejection or downgrading of all out-groups" (Noel, 1968:158). The greater the difference between the "out-group" and the "in-group", the lower the out-group will be ranked. In addition, if the "cultural strengths … of the out-group are not relevant to the values and goals of the in-group," ethnocentric attitudes will negate these strengths (Noel, 1968, 159). This can also be linked to Weber's concept of social closure which argues that the dominant group (i.e. the "in-group") in a society limits or excludes those seen as outsiders or minorities (i.e. "out-groups").

Competition, with respect to the "interaction between two or more social units striving to achieve the same scarce goal," is the second factor in Noel's theory of ethnic stratification (1968:160). He asserts that discrimination is lessened if groups are not perceived as competition for the same goal (for example, property). The greater the competition for objects or goals, the more likely the social interactions "will culminate in a system of ethnic stratification" (Noel 1968:160). Noel (1968:161) also states that the ability for groups to adapt to a competitive system will affect the "emergence" of a society stratified along ethnic lines. Using the term "adaptive capacity", Wagley and Harris (1958:264) state that the ability minority groups have to effectively compete with the dominant group protects them from exploitation and thereby helps group members become upwardly mobile in the "socio-economic hierarchy". Noel (1968) builds on this assertion by stating that groups that have been defined as "minorities" have to be flexible in order to adjust to the new economic system and compete with the dominant group. Noel (1968) also states that a minority group's ability to adjust to this new system helps in achieving social equality.

The third factor in Noel's (1968) theory of ethnic stratification is the inequality of power. Based on Lenski's (1966) assertion that a power disparity between groups is the basis of the development of any system of stratification, Noel (1968:162) asserts that power is "absolutely essential to the emergence of ethnic stratification". Because power differentials have such a significant impact on the development and resilience of an ethnically stratified system, Noel (1968) argues that the adaptive capacity of immigrants cannot overcome the effects that power disparities have on minority

groups. Again, Weber's concept of social closure can be applied here, as the power that dominant groups hold can be used to exclude other groups from valued resources.

Noel's (1968) theory offers a comprehensive explanation of the causes of ethnic stratification in societies comprised of different ethnic groups. Without ethnocentrism, groups would not be divided along ethnic lines. An absence of competition would remove the motivation to have a stratified system. An equality of power among ethnic groups would prevent the dominant position that one group has over other groups. While Noel's (1968) theory focuses specifically on ethnic groups, these three factors are all touched upon to some degree by various theories of racial and ethnic relations which are discussed below.

Assimilation Perspective

A common approach to examining race and ethnic relations has been the assimilation perspective. In *Race and Culture*, Park's (1950) contribution to the study of race relations represents a prominent use of the assimilation approach and is widely employed in studies of immigrant integration. Assimilation has been defined by Gordon (1964:62) as

> a process of interpenetration and fusion in which persons and groups acquire the memories, sentiments, and attitudes of other persons or groups, and by sharing their experience and history, are incorporated with them in common cultural life.

The primary assumption in what is deemed Park's (1950) "race relations cycle" is that as social contact between different racial groups occurs, social interactions between the groups will, over time, result in assimilation. Park (1950) asserts that, following contact between different groups, there is first a period of competition for resources which is then followed by conflict. As the conflicts for things such as employment and housing become regulated by society, the various groups become adjusted to the new society's social institutions (Ujimoto, 1990). Assimilation will then result from this process. Park (1950:150) states that the cycle of assimilation appears to be "progressive and irreversible". Thus, the assimilation perspective assumes that all "new" groups introduced into a society will become similar to the dominant group over time.

The assimilation theory has similar assumptions to human capital theory in that it presupposes that individuals are rewarded in society based on their productivity within an open labour market. Immigrants that come to a new country with different skills and cultural backgrounds are seen as having a disadvantage, as these characteristics may not be compatible with the institutions of the host society. Therefore, research from the assimilation perspective tends to focus on the problems that immigrants have in adapting to their new country. In addition, there is an assumption that strong affiliation with one's cultural background hinders immigrants' advancement in their new society. However, assimilation theory also indicates that the persistence of ethnic association occurs when it performs a valuable function for its members. For example, ethnic "niches" or "enclaves" are sometimes identified as a helpful resource for immigrants to obtain employment opportunities within their own ethnic community (Reitz and Banerjee, 2007; Portes, 1995).

Lieberson's (1980) contribution to theories of ethnic stratification challenges Park's assimilation theory to some extent. Lieberson (1980:68) asserts that the main issue in racial and ethnic relations is "each population's maintenance and development of a social order compatible with its way of life prior to contact". Similar to Weber's (1946) theory of social stratification, Lieberson (1980) argues that the core of any race relations cycle must deal with political, social, and economic institutions. Knowing how the dominant group exerts power over the other(s) in each of these realms is "a necessary but insufficient prerequisite" for analyzing the different stages of racial and ethnic relations (Lieberson, 1980:68).

Lieberson (1980) explains that one must distinguish between two main types of race and ethnic contact: contact in which the indigenous population is subordinate to a migrant group and contact in which the indigenous population is dominant over the migrant group. In the case of Canada, both of these types of contact have occurred. First, following conflict, the migrant Europeans exerted dominance over the native Aboriginal groups of Canada, placing them in a subordinate position. As the Europeans became more dominant and established in Canadian society, new migrant groups were also subordinate to them. Ujimoto (1990:216) notes that when the relations between the dominant and

subordinate groups are stable, "racial harmony can be maintained". Lieberson's (1980) assertion that there are different outcomes in race relations depending on the type of race and ethnic contact is a significant statement for two reasons. First, it casts doubt on Park's (1950) theory of race relations as an inevitable result of group interactions. Second, it illustrates that Canada's race relations history could represent both possible outcomes: conflict (i.e. Aboriginal relations) and a relative degree of assimilation (Ujimoto, 1990:218). Although the Aboriginal population in Canada is not examined in this study, it is important to note Canada's relatively unique position with respect to racial and ethnic relations.

Theories of Ethnic and Racial Stratification in Canada

Many studies have examined issues of ethnic and racial inequalities in Canadian society (e.g. Reitz, 2006; Gee and Prus, 2000; Li, 2000; Lian and Matthews, 1998; Pendakur and Pendakur, 1998; Satzewich and Li, 1987; Lautard and Loree, 1984; Darroch, 1979; Porter, 1965). Most studies acknowledge that both economic factors and prejudice or discrimination contribute to ethnic or racial stratification, where recent immigrants and visible minorities are the most disadvantaged. Although he concentrated primarily on ethnic groups within Canada, particularly the English and French charter groups, John Porter's (1965) view of ethnic stratification was likely the most influential to the development of the study of race and ethnic relations in Canada.

A stratification system based on ethnicity in Canadian society was primarily brought to light in Porter's *The Vertical Mosaic* (1965). In this work, Porter concludes that an ethnic group's entrance status upon immigrating to Canada affects its socio-economic achievement. Ethnic affiliation with a group considered to be "inferior" to Canada's Charter groups (i.e. English and French) is identified by Porter as potentially hindering certain ethnic groups from aspiring to higher statuses within Canadian society (Porter, 1965). Porter (1965) anticipated a reciprocal relationship between ethnic group affiliation and class. The question of whether ethnicity is a disadvantage to ethnic groups' social mobility has been a prominent question in Canadian sociology, particularly with respect to the economic integration of immigrants.

Since Porter's study, some have questioned the ethnically blocked mobility assumption (Darroch, 1979; Satzewich and Li, 1987). Darroch's (1979) work questions whether stratification based solely on ethnicity is a permanent phenomenon in Canada. Instead, Darroch (1979:179) suggests that the link between ethnicity and mobility can vary from ethnicity being a hindrance to upward mobility, to no relationship between them, to ethnicity being a "resource for social mobility". However, Darroch (1979) does not explain different conditions under which these various relationships may occur. Herberg (1990) also presents evidence supporting Darroch's assertion that ethnic stratification in Canada has changed since Porter's (1965) study. Even some supporters of Porter's thesis (e.g. Lautard and Guppy, 1990) concede that the differences between ethnic groups have decreased and may primarily be a result of changes in immigration in more recent times.

Many criticisms of Porter's (1965) thesis are, in fact, related to changes in Canada's demographic composition over time. Due largely to changes in immigration policies, Canada's immigrant groups have shifted greatly from the time of Porter's analysis. The most significant change has been in immigrants' regions of origin. With more immigrants arriving from "non-traditional" source countries, there is less familiarity with the cultures, and consequently the credentials and training, obtained in these countries. In addition, there are a greater number of immigrants of visible minority status than when Porter examined this issue; consequently, some argue that his notion of the vertical mosaic is still relevant in describing Canadian society, but contend that it now relates to racial or "visible minority" groups instead of ethnic groups (Fleras and Elliot, 2003; Gee and Prus, 2000; Lian and Matthews, 1998). Gee and Prus (2000:239) also state that the institutionalization of the multiculturalism and general acceptance of principles in Canadian society also affect more current interpretations of Porter's work.

Thus, since Porter's (1965) work a shift has occurred in Canadian literature on the inequality experienced by immigrant and minority groups. Instead of a focus on a comparison between the "privileged" English and French Charter groups and other ethnic groups, many now concentrate on the concept of racial stratification (e.g. Hum and Simpson, 2007; Hou and Balakrishnan, 2004; Pendakur,

2005; Lian and Matthews, 1998). That is, the vertical mosaic based on ethnicity, as it was conceptualized by Porter (1965), has now been "displaced by a racialized mosaic" (Fleras and Elliott, 2003:117). This re-conceptualization of stratification within Canadian society not only provides a framework with which to examine immigrant groups that represent both visible minorities and non-visible minorities, but it also allows for a comparison between Canadian-born and foreign-born visible minorities. Galabuzi (2004:1) asserts that ethnic stratification is an outdated approach to studying the "social order" of Canada and has been replaced by "racial hierarchies" in which racism is apparent. However, some continue to utilize the overlapping concepts of "ethnicity" and "race" interchangeably, indicating the difficulty in separating these two means of classification completely.

Because Porter's thesis increasingly appears to be outdated in the context of Canada's changing demographics, other approaches have emerged to understand social stratification along ethnic or racial lines. There are two prominent explanations used to explain the lower earnings and other economic disadvantages experienced by visible-minority immigrants. The first is the assertion that immigrants' foreign credentials have been devalued by the labour market and regulatory bodies (e.g. Basran and Zong, 1998). The second explanation identifies racial discrimination in the hiring practices of employers. These two explanations are inter-related as both represent differing degrees of discrimination.

While discrimination seems to be a prominent explanation in many studies examining obstacles to immigrant employment success, some also attribute the systemic barriers encountered by immigrants as a simple lack of knowledge of the behalf of both occupational regulatory bodies and employers (e.g. Thompson, 2000). The devaluation of foreign credentials may be due to a basic lack of information and official guidelines in determining the relevance and quality of various foreign credentials. As a result, some Canadian employers simply "take comfort in ...[individuals with] Canadian accreditation, even where such accreditation is neither legally required nor essential to job performance" (Brouwer, 1999:13).

Overall, the influence of Porter's (1965) "vertical mosaic" thesis has had a significant impact

on Canadian studies of stratification along ethnic or racial lines. Although many now doubt a rigid stratification system based on ethnicity in Canada, others argue that a similar system exists based on visible minority, or racialized, status. Some researchers assert that the changing origins of Canada's immigrant groups have also caused changes in the returns to immigrants' education. These arguments are all relevant to the current study of racial and ethnic relations within Canadian society and are accounted for in this research.

Summary

This chapter begins with an overview of some influential theories of social stratification. General theories of social stratification, such as those provided by Weber (1946, 1968) and Davis and Moore (1945) provide clear explanations of how and why societies may become stratified. These theories are also shown to be relevant to more specific theories that are used to explain potential barriers to immigrant employment success. Weber's (1945) concept of social closure is used to inform the discrimination perspective, while Davis and Moore's functional theory is shown to be related to the human capital perspective.

Theories of ethnic and racial relations are also discussed in an effort to explain the origins of ethnic stratification (Noel, 1968) as well as theories of racial and ethnic interactions (Lieberson, 1980; Park, 1950). These theoretical approaches illustrate the difficulties in creating a single theory to explain racial and ethnic relations. Lieberson's (1980) theory also indicates how a nation such as Canada, which has had a history of different types of ethnic and racial interactions, can be fairly complex to study with respect to racial or ethnic stratification.

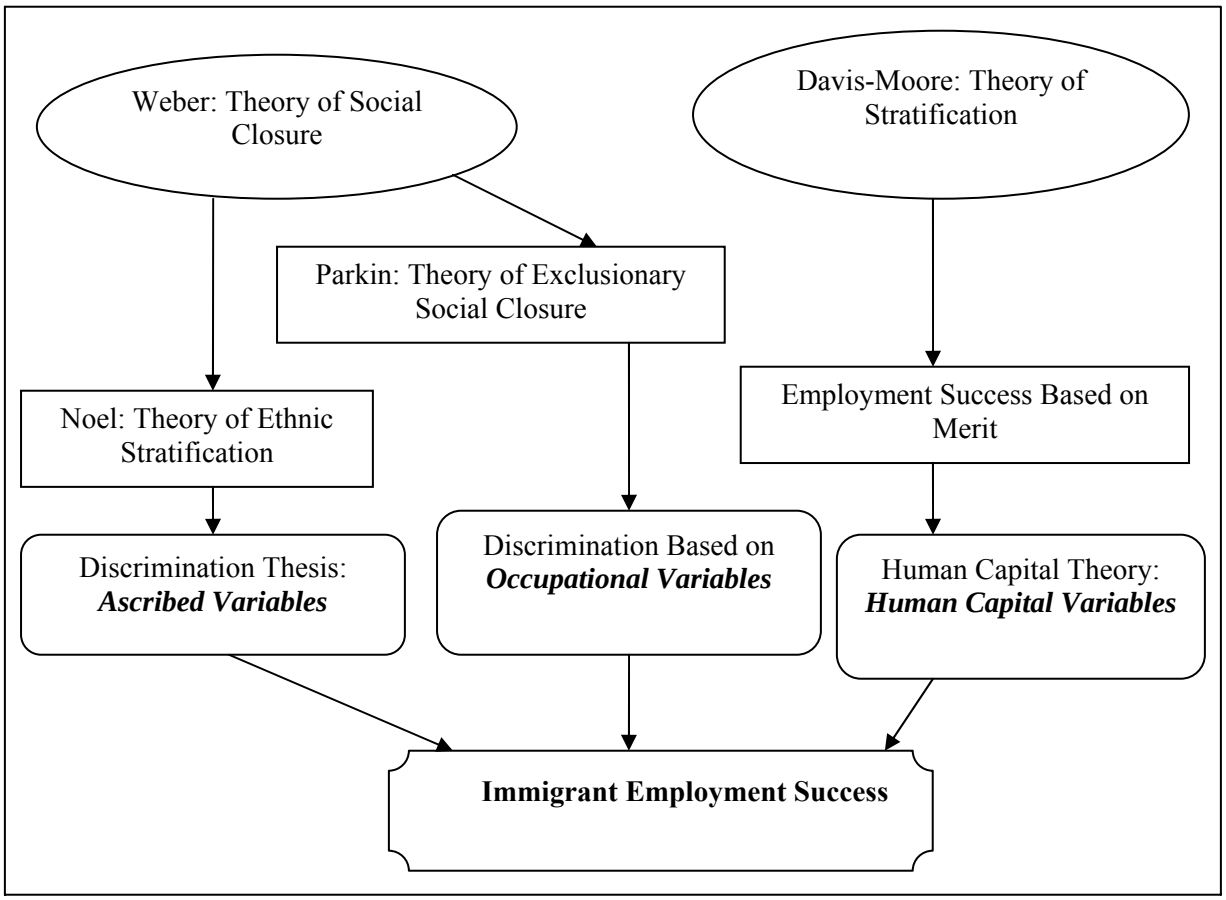
The final section of this chapter addresses theoretical approaches that are specific to research on Canadian society. Due to the complexities inherent in studying a diverse country, in addition to its changing immigrant groups, it is clear that theoretical contributions such as Porter's (1965) ethnically blocked mobility thesis may only be useful at particular times in history and may be rendered problematic with changing demographics and immigration policies. Research that has been conducted

since Porter's study has drawn upon the general idea behind his thesis while recognizing how new immigrant groups have forced alterations to the original "vertical mosaic" theory.

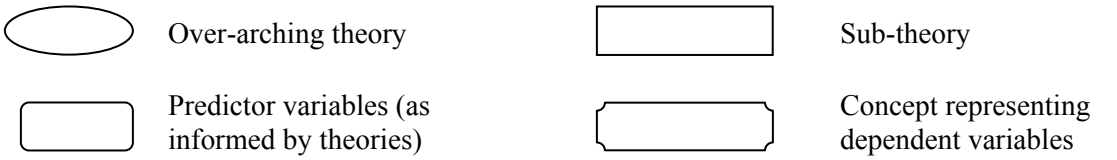
The study of immigrant integration and employment success can be informed by a variety of theoretical perspectives. The primary focus in research on the economic integration of immigrants is whether barriers to immigrant employment are individual or institutional. While human capital factors such as education, work experience, and language proficiency undoubtedly have some effect on most employment, they likely do not account for all of the difference, particularly in the case of immigrants. Institutional barriers, such as the acceptance of credentials and foreign work experience are also likely to impact immigrants' employment success.

The separation of individual barriers from institutional barriers is often difficult, particularly when the issue of discrimination is raised. While some employers may cite one's lack of fluency in an official language as the primary barrier to employing an immigrant (i.e. an individual barrier), immigrants themselves may perceive systemic racial discrimination as the true problem. Basran and Zong (1998:10) suggest that "it would not be accurate to consider their occupational disadvantages as resulting from two types of barriers in isolation" (Basran and Zong, 1998:10). Therefore, it is important to note that individual and institutional barriers may interact with one another, both from the perspective of the foreign-trained immigrant and the factions that regulate employment. Figure 2.3 (on the following page) illustrates how the different theoretical perspectives discussed in this chapter inform the statistical models employed in this study.

Figure 2.3: Relationship Between Theoretical Perspectives and Statistical Models



Legend for Figure 2.3



Chapter Three

Literature Review

The study of social inequality in Canada, with respect to immigrant employment success, has evolved from a focus on broadly defined ethnic groups (e.g. Porter, 1965; Lautard and Loree, 1984) to analyses based on more specific and varied characteristics of this population. Factors such as region of origin, visible minority status, and cohort are now frequently found in research examining the earnings and occupational attainment of immigrants (e.g. Frenette and Morissette, 2003; Li, 2000; Thompson, 2000). This change in focus follows the theoretical progression in Canadian studies of ethnic stratification from Porter's (1965) *Vertical Mosaic* thesis to discussions of systemic discrimination and the role of human capital in employment success. Although some studies continue to concentrate on the "vertical mosaic" thesis (e.g. Lian and Matthews, 1998; Nakhaie, 1998; Pendakur and Pendakur, 2002; Yasmin and Abu-Laban, 1992; Lautard and Loree, 1984), those that examine immigrants in their analyses typically include human capital variables such as years of education and knowledge of official languages as potential explanatory factors in analyzing the employment success of immigrants and ethnic groups in general.

Inequalities in the labour market success of immigrants are primarily measured by two concepts in the literature: earnings and occupational attainment. While the majority of studies focus on various measurements of earnings (e.g. Alboim et al., 2005; Li, 2000; Bloom et al., 1995), some address occupational attainment in terms of status (e.g. Yasmin and Abu-Laban, 1992) or skill level (e.g. Thompson 2000). Some of the studies reviewed measure the employment success of immigrants using both of these concepts (e.g. Dryburgh, 2005; Wanner and Ambrose, 2003; Reitz, 2003, 2001a; Wanner, 1998). Differences in how earnings or occupational attainment are measured result in variations between the conclusions of these studies. This causes some confusion when interpreting the extent to which immigrants suffer from inequalities in earnings or occupational attainment when compared with the native-born population in Canada.

The review of literature also reveals that there are some gaps that need to be filled with respect to the research methodologies and data used to study the economic integration of immigrants in Canada. Researchers who employ quantitative techniques rely heavily on various years of the Canadian Census (e.g. Pendakur and Pendakur, 2007; Aydemir and Skuterud, 2004; Frenette and Morissette, 2003; Moore and Pacey, 2003; Reitz, 2003; Boyd and Thomas, 2002, Reitz, 2001a, Reitz, 2001b; Li, 2000). Although census data are useful for comparing the immigrant and native-born populations, the Census of Canada also lacks some key data that could be relevant to examining immigrant employment (e.g. previous work experience). Among quantitative studies there is also a trend toward examining only males (e.g. Alboim et al., 2005; Yoshida and Smith, 2005; Boyd and Thomas, 2002; Boyd and Thomas, 2001). Only two of the quantitative studies reviewed focus exclusively on immigrant women (Wanner and Ambrose, 2003, Beach and Worswick, 1993). While Man (2004) provides a rich qualitative study of the employment experiences of a group of Chinese women, qualitative studies such as these can only provide insight into the employment experiences of certain groups of immigrants and cannot be generalized to the wider immigrant population.

The following review of literature addresses all of these issues in further detail. The review begins with an historical overview of the relationship between Canadian immigration policy and the economic integration of immigrants. Four separate discussions of the results of empirical studies follow. These discussions are grouped according to studies which focus on (a) the "vertical mosaic" thesis presented by Porter (1965); (b) earnings differentials between immigrants and native-born Canadians; (c) occupational attainment of immigrants to Canada; and (d) both earnings and occupational attainment of immigrants. These sections address the differences found between immigrants and native-born Canadians and in some cases differences within the immigrant population.

The discussion of empirical studies is then followed by an overview of the methodological strategies employed by researchers examining immigrant employment success. The strengths and weaknesses of these studies are discussed, leading to an explanation of how this research addresses these issues. This section also discusses issues related to the data used in the current literature;

concerns pertaining to the effects of an over-reliance on Canadian Census data and measurement problems are addressed. A summary of what the current literature on immigrant employment success in Canada has contributed to the field thus far concludes this chapter. Arguments that address what is lacking in the literature and the implications of this are also discussed.

Immigrant Economic Integration in Canada: The Role of Immigration Policies

Canada's immigration policy is of particular interest to the study of immigrant employment success, particularly with respect to the non-recognition of foreign credentials. Policy concerns that are affected by this issue range from the economic objectives of Canada's immigration programs to the general integration of immigrants upon arrival. While Canada's current policy on immigration is primarily built upon the objective of filling labour market shortages with qualified immigrants, the reality of unemployment or underemployment for these professionals may indicate a problem with the immigration process (McDade, 1988). Brouwer (1999:6) asserts that there is a "massive disconnect" between policy intent and the reality that many immigrants encounter upon arrival. This reality "makes a mockery of efforts by the immigration department to recruit well-educated immigrants" and therefore undermines the economic objectives of Canada's immigration program (Brouwer, 1999:6).

Canada's Immigration Policies: Overview of Policies from late 19th to early 21st Century

The first active effort to recruit immigrants from overseas took place from 1867 to 1892. During this period, the government's aim was to attract farmers to Canada (Green and Green, 1999; Green, 1995). Professionals and trades-people were not sought-after immigrants at this time as agriculturalists were preferred in an effort to develop Canada's potential in natural resources (Knowles, 1997). The relationship between occupations and "preferred" immigrants has thus been present in Canada's immigration objectives from the beginning. Immigrants were also recruited in the late 1800s to aid in the completion of the Canadian Pacific Railroad (CPR) when Chinese labourers were actively recruited by CPR agents (Elliott and Fleras, 1990). While these initial influxes of immigrants were not the result of any formal policies, specific policies were later developed aimed at recruiting immigrants with different skill sets (Fleras and Elliot, 2003; Knowles, 1997). The Immigration Act of 1906 was

considered the "first legal mechanism" to control the selection of immigrants to Canada (Knowles, 1997:83).

Between 1915 and 1945 various widespread events such as World War I, the Great Depression, and World War II created a negative view of immigration among Canadians and saw a large decline in the number of immigrants to Canada. World War I and II in particular fostered "anti-foreign" sentiments. The depression of the 1930s also contributed to opposition to immigrants as they were seen to threaten "scarce jobs" during a time in which a large proportion of the labour force was unemployed (Knowles, 1997:115). World War II also resulted in the expulsion of thousands of Japanese-Canadians from the Pacific Coast of British Columbia, some of whom were sent to detention camps (Knowles, 1997). Other Japanese-Canadians were sent to work as farm labourers to fill labour shortages in the sugar beet fields in other provinces (Knowles, 1997:121). The end of World War II coincided with renewed industrial growth and a new wave of immigration to Canada (Li, 2003a).

During the 1950s, Canada's immigration policy reflected the government's preference for more highly skilled workers. Due to the need for a wider range of skilled individuals, Canada's immigration policy was widened geographically, because "the traditional source countries could not supply all the skills required" (Green, 1995:334). Subsequently, the immigration policy introduced in the early 1960s represented a "selection mechanism" that was based on observable skills that related to occupational sectors in need of workers (Green, 1995:334). In 1962, Canada was among the first to state that individuals from any nation in the world could immigrate to Canada if they were deemed a "qualified person" (Fleras and Elliott, 2003:257). The official points system was thus introduced in 1967 and recognized three classes of immigrants: sponsored dependents, nominated relatives, and independents. Those classified as "independents" gained entry into Canada primarily through the points system, although immigrants sponsored under the family reunification program remained an important part of the general immigration program (Li, 2003a; Green, 1995).

During the 1970s, more emphasis on occupational skills and experience in an immigrant's intended occupation were reflected in the points system. Points to education and one's personal

suitability to the country decreased. These changes indicated a more strict approach to the occupational matching of immigrants' skills to Canada's economic needs (Green, 1995). The 1976 Immigration Act also introduced investors and entrepreneurs to the business class of immigrants (Elliott and Fleras, 1990). In the early 1980s, economic recession had a significant impact on immigration, causing the points system to be "virtually shut down" (Green, 1995:334). By 1986 the points system restarted with the focus changing to more demographic concerns affecting the Canadian population. By the 1990s immigrants' eligibility again became largely dependent on their skills and the demands of the labour market. Bloom et al. (1995:989) characterize the Canadian immigration policy in the 1990s as one that was used in a "tap-on, tap-off fashion to alter immigrant flows" in order the meet the changing needs of the economy. By the end of the 1990s, changes to Canada's immigration policy were imminent.

In 2003, Citizenship and Immigration Canada (CIC) determined that the "General Occupations" list would no longer be used when assessing immigrants in the "skilled worker" category. Instead, CIC placed more weight on applicants' education and proficiency in an official language (English or French). An applicant's intended occupation upon migration became less important for admission into Canada than his or her general human capital. The government asserted that this policy change was a means to aid immigrants who have difficulties meeting all of the Canadian requirements before their arrival. It was also identified as a means to help Canadian employers who do not necessarily require previously trained employees "to meet the same entry requirements as new entrants to the job market" (Boyd & Thomas 2002:94).

Ferguson (1978) and Man (2004) note that immigrant professionals have often expressed feelings of being misled regarding their employment opportunities upon arrival in Canada. Due to their high skill level and previous training, immigrant professionals "are not prepared for the difficulties they meet", particularly when encountering the assessment of professional regulatory organizations (Ferguson, 1978:20). The federal government and the general immigration process are often blamed for this, being accused of "paint[ing] too rosy a picture of the situation in Canada at the

time of overseas interview" (Ferguson, 1978:20). Man (2004:144) states that many immigrant women feel "frustrated by the discrepancies in their expectations and the reality of the harsh life" that is encountered after arriving in Canada. This is not a new criticism of Canada's approach to soliciting immigrants. During the years of Prime Minister Laurier (1896-1911), Clifford Sifton was appointed Minister of the Interior and was seen as an "aggressive salesman" for immigration to Canada (Knowles, 1997:65). Sifton was behind a potentially misleading advertising campaign in which "editorial" articles appeared in foreign newspapers touting the opportunities available for immigrants in Canada (Knowles, 1997:65).

The barriers that immigrants encounter in seeking professional employment range from a lack of information at the beginning of the immigration process to the everyday issues faced after arriving in Canada. The general lack of information for new immigrants regarding the steps which one must follow in gaining access to a profession or trade in Canada is a concern voiced by many (Brouwer, 1999; Ferguson, 1978). Some of this may be due to the lack of knowledge on the part of immigration consultants and lawyers who are often consulted by both prospective immigrants and newly arrived immigrants. New immigrants also often find the procedures associated with professional bodies to be "confusing and unwieldly" (Toronto Star, 18 June, 2006). Some research has found that the most frequent obstacle that immigrants face is the difficulty in gaining recognition of foreign work experience (e.g. Aydemir and Skuterud, 2004). Because Canadian work experience is most valued within professional occupations, it is difficult for immigrants to obtain employment in these fields. If Canadian work experience is required to gain employment in the first place, there is a cycle which then continues; that is, one cannot gain Canadian work experience if that work experience is contingent on the recognition of foreign work experience (Brouwer, 1999). Foreign work experience or internship placements are often expected to be repeated within Canada; however, opportunities to do so are frequently restricted (McDade, 1988).

Therefore, despite a long history of Canadian immigration policies geared toward fulfilling economic needs and goals, the relationship between current policy and the realities of the labour

market for recent immigrants continue to be problematic. While past immigration programs focused on immigrants with agricultural knowledge, advancement into a "credential society" has created new obstacles to the successful economic integration of immigrants in Canada (Collins, 1979). Because there is now a burden of "proof" of knowledge in the form of educational credentials prior to obtaining a job (as opposed to "proof" based on agricultural production in the past), the underutilization of immigrants' skills has become a greater concern over time. Thus, recent immigrants face more complicated issues relating to their economic success than those faced by early immigrants to Canada.

Discussion of Empirical Studies: Examining Earnings and Occupation

The following section discusses various empirical studies relating to the economic integration of immigrants in Canada. Research relating specifically to Porter's (1965) *Vertical Mosaic* is briefly discussed, followed by an examination of empirical studies. Due to the fact that the primary focus of this research is to examine various employment outcomes, the studies are discussed with respect to the aspects of immigrant employment success that they observe. This section concludes with a discussion of issues of methodology and data brought to light by the review of literature.

Vertical Mosaic Studies: Examining Ethnic and Racial Stratification in Canada

Porter's (1965) core thesis in *The Vertical Mosaic* indicates that stratification in Canadian society is largely aligned with one's ethnic affiliation. Following Porter's (1965) work, many researchers tested this hypothesis and some questioned the validity of his findings (e.g. Ogmundson, 1993; Darroch, 1979; Rich, 1976). These criticisms are based in part on demographic changes in the immigrant population since Porter's study. However, some research has found evidence that a hierarchy of social positions based on ethnic origin may still be a component of Canadian society (e.g. Pendakur and Pendakur, 2002; Gosine, 2000; Nakhaie, 1998; Lautard and Loree, 1984). Other researchers utilizing the "vertical mosaic" thesis have discovered that this hierarchy is aligned more along racial lines (e.g. Herberg, 1990).

Support of Porter's (1965) assertion of an ethnically stratified Canadian society is provided by Lautard and Loree (1984) who examine the occupational differentiation and occupational status of

ethnic groups. Lautard and Loree (1984) conclude that, because there is considerable occupational differentiation among ethnic groups, the relationship between occupation and ethnicity persists in Canadian society. Nakhaie's (1998) research also supports the vertical mosaic thesis through an analysis of the ethnic origins of individuals earning over one hundred thousand dollars in the Ontario public bureaucracy. Nakhaie (1998:127) argues that higher status occupations are still accorded to the charter groups in Canada, stating that these two groups "demand greater power, status, and privilege" than other ethnic groups. However, the results of this study may be questionable due to the use of name dictionaries to determine the ethnic origin of the individuals studied. Although previous studies have also used name dictionaries, factors such as women taking their husbands' last names (who may be of a different ethnic origin) or the practice of some immigrants changing their surnames to more "anglo-sounding" names may affect the results of this study.

Another study that examines the "vertical mosaic" thesis was conducted by Herberg (1990). Studying the socio-economic status (SES) of "ethno-racial groups", he finds that ethnic differences persist with respect to occupation, education, and income. Using a socio-economic index, Herberg (1990) finds that the Indochinese, Greek, and Portuguese groups ranked low in the SES hierarchy. However, contrary to Porter's (1965) results, Herberg (1990:217) finds that the British dropped to a "middle SES position" in Canadian society. Herberg (1990) concludes that ethnic stratification is not as pronounced as stratification along racial lines. In fact, visible minorities are found to suffer from severe income inequality when compared to non-visible minorities in Canada. Gosine (2000) also finds that university-educated racial minorities have statistically significant earnings deficits when compared to non-visible minorities in Canada. He also determines that even when educational and occupational variations are accounted for, this relationship between race and income is upheld.

Studies that employ the use of the "vertical mosaic" thesis indicate that there is still a stratification system within Canadian society that affects individuals' occupational and income attainment. This stratification may be based on ethnic or racial lines; the complexities and overlapping nature of both of these concepts complicate any analysis looking for a definitive answer. Regardless of

these complications, it is clear that stratification of this kind affects the employment success of immigrants to Canada.

Immigrant Employment Success: Studies Examining Earnings

Among studies that focus on the measurement of earnings to determine immigrant success in the labour force, the use of this variable is applied in numerous ways. While some examine immigrants' annual salaries, others measure income deviations from the mean, "low income cut-off" designations, or hourly or weekly wages (e.g. Goldmann et al., 2009; Pendakur and Pendakur, 2007, Aydemir and Skuterud, 2004; Reitz and Verma, 2004; Anisef et al., 2003; Li, 2003b; Kazemipur and Halli, 2001; Pendakur and Pendakur, 1998; Lian and Matthews, 1998). MacLachlan and Sawada (1997:387) state that there is "no ideal measure of income for the purposes of measuring inequality". Therefore, the general conclusions of studies that focus on immigrant earnings must be interpreted with these variations in mind. While general earnings differentials are useful in determining the relative economic success of immigrants as compared to their Canadian counterparts, one must also be careful in the identification of the "disadvantaged" groups (Pendakur and Pendakur, 1998). In this respect, many studies that analyze earnings differentials treat the immigrant population as a fairly homogenous group, thereby overlooking differences within this large and varied population (Thompson, 2000).

In general, the majority of studies that focus solely on earnings conclude that immigrants receive lower earnings than Canadian-born workers, particularly immediately after their arrival in Canada (Galarneau and Morissette, 2008; Reitz, 2006; Alboim et al., 2005; Yoshida and Smith, 2005; Aydemir and Skuterud, 2004; Chui and Zietsma, 2003; Frenette and Morissette, 2003; Moore and Pacey, 2003; Pendakur and Pendakur, 2000; Lian and Matthews, 1998; Bloom et al., 1995). Precise differences in earnings between immigrant and Canadian-born populations vary. Aydemir and Skuterud (2004), who measure earnings by logged weekly wage, study several cohorts of immigrants and determine that all cohorts had earnings between seven and twenty percent lower than Canadian-born workers. Alboim et al. (2005) determine that the annual income gap between immigrant and Canadian-born workers is more marked, with immigrants earning approximately thirty percent less

than native-born workers. Li (2000) concludes that the size of earnings differentials varies according to factors such as Census Metropolitan Area (CMA) and racial origin. Age is also found to be a significant predictor of immigrant earnings, with older immigrants experiencing a greater earnings disadvantage than younger immigrants (Anisef et al., 2003).

Many explanations for income differentials are presented throughout the earnings literature. The time period during which immigrants arrive in Canada is a common explanation for potential difficulties in the labour market. Several researchers address the fact that changes in the economic situation of Canada at the time of immigration has had different effects on each immigrant cohort (e.g. Chui and Zietsma, 2003; Li, 2003b; Moore and Pacey, 2003; Bloom et al., 1995). Using a longitudinal approach, Li (2003b) finds that, while recent immigrants earn less than earlier cohorts upon immigration, they also close the earnings gap more quickly. Picot (2004) and Moore and Pacey (2003) use the recession in the 1990s as an example of a period of high immigration and slow economic growth. The combination of these factors likely led to this cohort of immigrants having greater difficulty integrating into the Canadian labour market. Frenette and Morissette (2003) also find that, despite their relatively high levels of education, immigrants in the 1990s generally did not receive access to high-paying jobs. This was not the case for earlier cohorts of immigrants with similar levels of education. Thus, factors such as unemployment rates at time of arrival are useful in understanding between-cohort differences in employment success.

Other research aligns immigrants' lower earnings with the goals of immigration policies at the time that they apply to immigrate to Canada (e.g. Statistics Canada, 2007; Reitz, 2006; Picot, 2004; Bloom et al., 1995). A common explanation in these studies points to shifts in countries of origin and in language skills as factors that have affected immigrant earnings (e.g. Aydemir and Skuterud, 2004; Picot, 2004). Bloom et al. (1995:999) assert that "the Canadian labour market has not been able to easily assimilate more recent cohorts of immigrants given the changing nature" of immigration policies. A Statistics Canada (2007) report states that increased levels of immigration correspond with lower wages for this population.

Changes to immigration policy that widened the pool of immigrants to any nation in the world are believed to have had an impact on earnings inequality between immigrants and the native-born population. The literature that discusses the effect of changes in regions of origin indicates that this factor negatively affects the acceptance of immigrants' foreign work experience and education (e.g. Picot and Sweetman, 2005; Aydemir and Skuterud, 2004; Picot, 2004). Picot (2004:33) states that immigrants' regions of origin "play a significant role" in the relationship between human capital factors and earnings. More specifically, Picot (2004) finds that immigrants from Eastern Europe, South Asia, East Asia, Western Asia, and Africa have lower earnings than immigrants from more traditional source regions (e.g. United States, Northern and Southern Europe), even when they possess equivalent levels of education and work experience. Reitz and Sklar (1997) also find that immigrants who arrive from non-European regions face an earnings disadvantage. In addition, Aydemir and Skuterud (2004) conclude that skills developed through foreign work experience are less valued than skills obtained through Canadian work experience and that approximately one third of earnings differentials for recent immigrants may be attributable to the declining returns to their foreign work experience. Goldmann et al. (2009) also find no significant returns to an immigrant's years of foreign work experience.

Because immigrants are often aligned with new labour market entrants, some research suggests that their competition with young workers who are born or educated in Canada has a significant effect on immigrant earnings (e.g. Reitz, 2001b; Frenette and Morissette, 2003). While new workers in the Canadian labour force have generally suffered from low earnings in recent years (Picot, 2004), the increase in education levels of Canadian-born workers also affects immigrants' economic integration negatively (Reitz, 2001b). Canadian employers' apparent preference for Canadian education and experience gives Canadian-born workers an advantage over immigrants in the labour market. Green and Worswick (2004) have found that the negative employment outcomes immigrants have experienced in recent years parallel a downward trend among native-born new labour market entrants. However, Reitz and Banerjee (2007:495) state that "the consequences are greater for immigrants" who are found to live in poverty more often than native-born new labour market entrants, with racial

minorities being "disproportionately affected". Thus, although the negative trends in obtaining employment may be similar between these two groups, the costs of this trend are likely more pronounced for recent immigrants.

These explanations of lower earnings for recent immigrants illustrate the wider concept of the devaluation of foreign qualifications which may as attributable to "pro-Canadian" attitudes as to "anti-foreign" attitudes toward credentials. The most prominent arguments addressing the non-recognition of immigrants' credentials point to country of origin or cohort effects. While some suggest that the non-recognition of foreign qualifications is due to employers' lack of knowledge and familiarity with foreign qualifications (e.g. Reitz, 2001b), others have asserted that it is not ignorance but discrimination that explains this phenomenon (e.g. Picot, 2004). The recognition of foreign credentials clearly has a significant impact on immigrant earnings. This is illustrated by Goldmann et al. (2009) who find that when an immigrant obtains a job than matches his or her credentials, there is a significant and positive effect on his or her earnings.

Discrimination based on visible minority status is a common factor addressed in the research examining immigrant earnings inequality (e.g. Li, 2008; Pendakur and Pendakur, 2007; Walters et al., 2006; Picot and Sweetman, 2005; Anisef et al., 2003; Pendakur and Pendakur, 2000; Lian and Matthews, 1998). Pendakur and Pendakur (2000) find that socio-economic variables do not explain away earnings differentials between whites and visible minorities in Canada; visible minorities in both the immigrant and native-born population are affected by this. With respect to just the immigrant population, Pendakur and Pendakur (2000) find that visible minorities fare worse than white immigrants while Li (2008) concludes that foreign credentials are useful to non-visible minority immigrants, but are generally detrimental to visible minorities. Li (2008:307) asserts that foreign credentials are "racialized", as visible minority immigrants have more difficulties having their credentials recognized. Despite this evidence, several researchers question the racial discrimination hypothesis, at least in part. Reitz (2001b) asserts that while discrimination based on visible minority status can explain the devaluation of foreign credentials to a certain extent, it cannot be the only

explanation. This assertion comes out of Reitz's (2001b) findings that white immigrants are also affected by credential recognition problems. Both Alboim et al. (2005) and Yoshida and Smith (2005) find that if an immigrant's education is completed within Canada, visible minority immigrants and white immigrants both receive good earnings returns to their education. Evidence from these studies suggests that possessing a Canadian education could be more important to individuals' earnings than visible minority status. However, Anisef et al.'s (2003) examination of whether immigrants' fields of study affect the earnings gap between immigrants and non-immigrants contributes varying evidence. This research concludes that, despite the fact that visible minority immigrants are "well represented" in fields of study that offer higher earnings than others (e.g. science, commerce, engineering) they still suffer from an earnings disadvantage compared to Canadian-born white males (Anisef et al., 2003:26). In addition, Anisef et al. (2003) find that racial minority immigrants who obtained most of their education within Canada still have an earnings disadvantage due to racial barriers.

While visible minority status is a main concentration among these studies, very few give attention to earnings differences based on gender. While some researchers compare earnings between immigrant and native-born men and immigrant and native-born women (e.g. Picot, 2004; Frenette and Morissette, 2003; Reitz, 2001), there is very little information on the earnings differences between men and women within the immigrant population. Several earnings studies also focus exclusively on men (e.g. Alboim et al., 2005; Yoshida and Smith, 2005; Boyd and Thomas, 2002). Reitz and Banerjee (2007) find that immigrant women experience an earnings disadvantage compared to Canadian-born women; however, they assert that the income inequality between these two groups of women is less substantial than it is between men since Canadian-born women are themselves at a disadvantage in terms of earnings. In addition, Li (2000:299) examines gender comparisons between the native-born and foreign-born, and finds that immigrant women face a disadvantage "compared with other immigrant groups [visible minority and non-visible minority immigrant men]…being female and being an immigrant seems to produce a double penalty in net earnings". This conclusion is supported by Galabuzi (2006) who asserts that the economic disadvantage faced by immigrant women is often a

result of both racism and sexism in employment. One study that examines the difference in occupational attainment between immigrant men and women finds that women are more likely to be employed in casual labour than men (Fuller and Vosko, 2008). Thus, while there is little focus on a comparison between men and women in the earnings literature, there is some evidence that immigrant women fare worse than immigrant men in terms of their financial and occupational attainment.

In addition to gender, few earnings studies have examined the effect of immigrants' admission class. Generally, the discussion of foreign credential recognition is focused on immigrants who arrive under the "Skilled Worker" category; however, little attention has been given to this issue. The lack of research regarding this factor is in part due to a lack of adequate data sources which contain entry class information. One exception to the lack of research in this area is work by Wanner (2003:66) who finds that, while skilled workers who have been "screened" by the points system initially experience higher earnings than admission classes who are not screened, these two groups ultimately converge over time. However, these findings represent a trend analysis accounting for immigrant earnings differentials between 1980 and 1995 as opposed to differences within a single cohort.

The majority of earnings studies offer institutional explanations for the dissimilar earnings between the immigrant and Canadian-born populations. Economic and labour market issues such as recessions, lack of knowledge leading to the non-recognition of foreign credentials, and an increased education level of the native-born population are common in this literature. Systemic discrimination problems associated with immigration policies are also found throughout the earnings studies. While level of education and work experience are discussed in relation to the devaluation of credentials, human capital factors alone are rarely identified as relevant explanatory factors in this literature. In fact, Li (2000:305) suggests that the assumption that immigrants earn less due to inferior human capital is "tenuous and simplistic" as it neglects to account for discrimination based race, gender, or region of origin. Discounting the role of human capital in immigrant earnings is interesting in light of the significant relationship between human capital factors and earnings in the non-immigrant literature. Human capital factors in combination with other factors is found to contribute to part of the variation

in immigrants' earnings; however, it is clear that human capital cannot explain the "whole story" of the earnings gap between the immigrant and Canadian-born populations. This is likely due to the devaluation of credentials from certain regions as well as racial and/or gender bias. This study addresses human capital factors such as level of education, previous work experience in one's intended occupation prior to immigration, and official language proficiency in order to determine what, if any, effect they have on immigrant earnings.

Immigrant Employment Success: Studies Examining Occupational Attainment

Research examining the occupational attainment of immigrants is less abundant than earnings studies. The studies that do examine this are relatively diverse in their measurement of occupational attainment. Both qualitative and quantitative methodologies are found in this literature; however, quantitative studies predominate. Of the quantitative research that concentrates on the issue of immigrants' occupational attainment, two approaches to the dependent variable are common. The first analyzes general occupational groupings according to skill level (e.g. Grondin, 2007; Boyd and Thomas, 2002; Boyd and Thomas, 2001; Thompson, 2000) or skill type (e.g. Grondin, 2007; Chui et al., 2004). The second approach identifies occupational status through different measures such as occupational status (Yasmin and Abu-Laban, 1992) or an index measuring occupational dissimilarity (Lautard and Loree, 1984). Reitz (2001a:17) notes that "the occupational categories used in these analyses are broad and may hide some skill variations". This is particularly true of the skill type classification. A main concern with studies that focus on occupation is the inclusion of heterogeneous categories, such as occupations that have been identified as "not elsewhere classified" (Kumar and Coates, 1982). Because the categorization of occupation is often fairly broad, it is difficult to determine variations in an individual's position within an occupational group. This is an important issue of which to be aware as foreign work experience and education may not be recognized in terms of promotions; this is relevant as it would indicate restricted mobility *within* occupations.

Qualitative research focusing on the occupational attainment of immigrants provides a slightly different focus. These studies concentrate on the perceptions that immigrants have about their

employment success in their chosen field, primarily focusing on the underutilization of human capital and the devaluation of foreign credentials and their subsequent effects on immigrants' lives (e.g. Man, 2004; Bauder, 2003; Basran and Zong 1998). Unlike the earnings studies, qualitative occupational research gives greater attention to differences within the immigrant population.

Many occupational studies reach a similar conclusion as the earnings studies with respect to the effect of region of origin on immigrant employment. Region of origin is an important factor in the studies that examine occupational attainment according to the skill level and skill type of immigrants' pre-migration employment. Chui et al. (2004) find that immigrants from Central and South America, China, India, and other parts of Asia have difficulties finding similar employment in the broad occupational groups of their pre-migration jobs. In a study specifically focusing on male engineers, Boyd and Thomas (2002) conclude that British, American, and European immigrants have an advantage over individuals from other countries in obtaining engineering occupations upon their arrival in Canada. Thompson (2000) also finds that individuals who immigrate to Canada from "traditional" source countries are more likely to find highly skilled occupations than immigrants from elsewhere.

Region of origin has been tied to the devaluation of foreign credentials in several studies. Most of the evidence in support of this is provided by qualitative analyses. Through interviews with credential recognition service employees, Bauder (2003:708) asserts that "South Asian immigrants with high human capital are often excluded from the upper labour-market segments" in which they have previous work experience. Interviewing Chinese women, Man (2004) determines that the foreign credentials and work experience of skilled Chinese female immigrants are not recognized by Canadian employers. Throughout their interviews with Indians and Asians in Vancouver, Basran and Zong (1998) also discover that most participants consider the non-recognition of their foreign credentials as the most important factor in preventing them from obtaining employment in professional occupations. Similar to the earnings literature, there is a significant concentration on the relationship between country or region of origin and the devaluation of foreign credentials and qualifications in the occupational attainment literature. It is of particular interest in qualitative studies which provide more

anecdotal accounts of immigrants' experiences in the Canadian labour market.

Discrimination based on visible minority status is also addressed in the occupational attainment literature, although to a lesser extent than in the earnings literature. Chui et al. (2004) and Thompson (2000) both find that visible minority status is an explanatory factor in immigrants' employment success with respect to occupational attainment. Chui et al. (2004) find that non-visible minority immigrants who are employed in natural and applied science occupations prior to immigrating are more likely to obtain similar employment in this skill type than visible minority immigrants seeking the same occupations.

The occupational attainment literature also reveals that there are differences between the employment experiences of male and female immigrants. In general, findings show that men are more likely to enter the labour force immediately after their arrival in Canada (Chui et al., 2004). Man (2004) asserts that the problems immigrant women have in obtaining employment in Canada stems from the tendency for women to immigrate as dependents. Chui (2003) finds that women comprise up to 75% of individuals arriving as spouses or dependents within the economic admission class. This status reinforces institutionalized sexist practices and results in immigrant women being regarded as "not destined for the labour market" (Man, 2004:140). Green (1995) finds that more immigrant women end up working in clerical, service, and manufacturing jobs than immigrant men. Through interviews and focus groups, Man (2004) asserts that, due to their responsibilities at home, many highly educated and skilled Chinese immigrant women become marginalized within Canadian society and the labour market. The jobs that they are able to obtain are usually low-status occupations and poorly paid.

Unlike the earnings studies, the literature focusing on occupational attainment also pays some attention to the effect of an immigrant's admission class. However, the focus is primarily on the effect of arriving as a spouse or dependent as opposed to arriving as a principal applicant. Chui et al. (2004) find that immigrants who arrive in Canada as principal applicants obtain employment more quickly than those who arrive as dependents. As discussed above, this finding is also echoed by Man (2004)

who finds that women are less likely to be principal applicants and thus have more difficulty obtaining employment in Canada.

The occupational attainment literature reviewed provides more information on human capital variables such as language proficiency and level of education than is found within the earnings literature. Greater attention to official language proficiency within the occupational attainment literature may be due to inadequate measurements in the census data employed in most of the earnings studies (refer to the "Issues of Methodology and Data" section of this chapter for a more detailed discussion of this). Studies that focus on the effects of official language proficiency conclude that knowledge of the English language has a strong positive influence on immigrants' ability to obtain employment matching the skill level or skill type of their intended occupation (Grondin, 2007; Thompson, 2000) and in having a high occupational status (Yasmin and Abu-Laban, 1992). However, Chui et al. (2004:14) determine that knowledge of an official language "did not seem to have any impact on whether [immigrants] found jobs in occupational groups similar" to their pre-migration employment.

Level of education is also found to be important in the occupational attainment literature. Chui et al. (2004) acknowledge that immigrants' level of education upon immigrating, in addition to other human capital factors, is related to their employment success in Canada. Green (1995) finds that immigrants' education is a more important determinant of occupational attainment than the occupational field in which they intend to work. Similar results are found when examining the relationship between level of education and occupational status (Yasmin and Abu-Laban, 1992).

The literature focusing on occupational attainment has informed the development of this research in several ways. First, it indicates that different skill levels required of occupations, as well as occupational status, are important factors in measuring the occupational attainment of immigrants; however, a more refined measurement is needed. This research measures several aspects of occupational attainment at different levels of occupational classification. This allows for more specific measurements of occupational attainment than is provided by the current literature which examines

occupational matches in very broad terms. This study also measures occupational attainment through the use of a new occupational prestige scale[2] (Goyder and Frank, 2007). This scale provides an updated measurement of the occupational status of immigrants in Canada, as previous literature uses outdated or crude scales such as identifying one's occupation as "high", "medium", or "low" status (Yasmin and Abu-Laban, 1992).

The examination of occupational characteristics as predictors of employment success is another contribution of this research study. While some literature examines occupational status as a dependent variable, none of the literature reviewed focuses on the specific status or occupational tasks of immigrants' intended occupations as potential predictors of immigrant employment success. The socio-economic status scores of occupation, differences in aptitude levels required for performing job tasks and the complexity of job tasks related to data and information, people, and/or things related to immigrants' intended occupations are included in the statistical models that measure the probability of obtaining a job match and the rate at which a job match occurs. The inclusion of these factors provides more information on how occupational characteristics may influence immigrants' ability to obtain employment in their intended occupations.

Immigrant Employment Success: Studies Examining Both Earnings and Occupation

Of those studies that incorporate both earnings and occupation into their analyses, similar approaches to these variables are taken. The rationale behind the use of these two variables is useful in understanding the simultaneous effects of earnings and occupation. Reitz (2001a:12) notes that in order to identify earnings disadvantages, one must also consider their relation to the "under-utilization of skills in specific occupations". Therefore, in order to study the general issue of underemployment among highly skilled and educated immigrants, Reitz (2001a) suggests that earnings analyses need to be compared with the skill levels of occupational categories. By analyzing both earnings and

[2] Concern over differences in prestige ratings by birthplace is addressed by Goyder and Frank (2007) who find that this factor, in addition to age and city size, did not have an effect on how the NOC major groups were rated by respondents.

occupational attainment, a more complete picture of immigrants' success in the labour market can be obtained.

Very few studies that examine both earnings and occupational attainment are found in the review of literature. In fact, most of these studies are found to be conducted by the same principal authors and are very similar in their approaches and conclusions (Reitz, 2003, 2001a; Wanner and Ambrose, 2003; Wanner, 1998). As might be expected, studies that examine both earnings and occupational attainment address a range of factors that are discussed in the previous sections of this chapter. These include educational attainment, official language proficiency, visible minority status, and the relationship between qualifications and region or country of origin, resulting in the devaluation of foreign credentials. Due to the small number of studies examining both earnings and occupational attainment, there is not a wide consensus on any of the results. However, some of the findings do support the literature discussed above.

One of the general findings that supports the earnings literature is provided by Dryburgh (2005). She states that when immigrants are grouped together they do not obtain earnings similar to Canadians until approximately sixteen years after migration. Reitz (2003) and Wanner (1998) also conclude that Canadian-born earnings are much higher than immigrant earnings. This difference is largely due to the fact that immigrants are typically educated in another country; that is, earnings are strongly related to place of education (Wanner, 1998).

Wanner (1998) and Wanner and Ambrose (2003) find that possessing a Canadian education is very beneficial to both the occupational attainment and earnings of immigrants. Those immigrants who are educated in Canada are found to have the same returns to human capital factors as native-born individuals (Wanner, 1998). Those who have been educated in another country receive lower returns to both occupational status and earnings than native-born individuals. However, these effects "vary systematically with country of birth" (Wanner, 1998:37). Wanner identifies a difference in returns to education based on the level of development of the immigrant's country of origin. In this respect, there may be an interaction between country of origin and education, as educational credentials from

"developing" countries may not be recognized due to a belief that they are of lesser quality than Canadian credentials. Dryburgh (2005:127) suggests that the non-recognition of foreign credentials for highly skilled jobs may be related to the "entry conditions or certification" determined by professional bodies.

Reitz (2001a) offers a more integrated conclusion with respect to earnings and occupational skill levels of immigrants to Canada. Comparing the immigrant population to the native-born, Reitz (2001a) asserts that Canadian-born individuals have greater access to more highly skilled employment, particularly in professional or senior management positions. This is echoed in his 2003 study which determines that immigrants have less access to "knowledge occupations". Because earnings are often related to the level of skill required for an occupation, Reitz (2001a) concludes that this factor accounts for between three to five percent of the overall fifteen to twenty-five percent difference in earnings between these groups when education level is considered. Therefore, what appear to be inequities in earnings may in part be "differences in access to occupations" (Reitz, 2001a:15; Reitz, 2003). Reitz (2003) also states that visible minority immigrants face barriers to professional and management occupations which are in part responsible for this group's earnings disadvantage. Reitz (2001a) also finds that, while visible minority immigrants receive significantly lower earnings, visible minorities who are born in Canada only do slightly better. These findings are interpreted as an indication of racial discrimination.

There is not much support for the theory of discrimination in the studies conducted by Wanner (1998) and Wanner and Ambrose (2003), despite a general discussion of the devaluation of credentials based on country of origin. Wanner (1998:37) takes a definite position on the discrimination thesis stating that he finds "little support for the argument of widespread prejudice" against ethnic minority immigrants. He argues that immigrants educated in foreign countries eventually "close the earnings gaps with the native-born," thus challenging the validity of the discrimination thesis (1998:38). However, Reitz (2001a) finds that visible minority status is a better predictor of earnings than one's country of origin.

While both earnings studies and occupational studies are good indicators of inequality they can vary according to the type and degree of inequality. Earnings studies, for example, are better able to quantify exact differentials between groups. Because of this, they may be seen as a better representation of inequality. However, earnings studies often examine immigrants together as a rather uniform group. In this respect, the inequality that immigrants experience is studied at a very broad level and important variations within the immigrant population are typically not accounted for. The occupation-based studies tend to represent a more varied approach to the immigrant population, recognizing it as a more heterogeneous group.

In general, the most important use for research that examines both earnings and occupational attainment is to obtain information about factors that are most relevant to a broader conceptualization of immigrant employment success. This research project benefits from this review of literature in that it incorporates measurements of both occupational attainment and earnings in order to study the economic integration of immigrants over time. By employing both of these concepts, a more complete picture of immigrants' integration into the Canadian labour market is obtained.

Immigrant Employment Studies: Issues of Methodology and Data

The review of literature indicates that much of the research surrounding the economic integration of immigrants to Canada is quantitative in nature. This is particularly true for those studies examining earnings differentials. Although quantitative methodologies still prevail in measuring the economic integration of immigrants, some insightful qualitative work has been done in the area of occupational attainment.

Qualitative research in this area of study provides useful contributions about the role of credential recognition services in immigrants' employment experiences (e.g. Bauder, 2003), immigrants' perceptions of the devaluation of their qualifications (e.g. Basran and Zong, 1998) and the intersection of immigrant status and gender in employment (e.g. Man, 2004). Although these are all important factors to be addressed, due to the financial and time limitations of qualitative research, these studies can only provide information on immigrants from a particular city or region in Canada or other

specific groups (e.g. individuals trained in a particular occupation or one or two groups of particular ethnic, racial, or national origin). As a result, the information obtained in these studies cannot be generalized to the wider immigrant population in Canada. In this respect, while one may be able to address problems within a particular occupational group or immigrants of a specific nationality, one is also limited in gaining information applicable to the general population of immigrants seeking employment. Because these studies often focus on immigrant groups who are highly represented in certain areas of the country or only in some of the more prominent professions (e.g. engineering), the results may not serve less represented groups in terms of ethnic, racial, or national origins or occupational field.

Studies that employ quantitative methodologies are also lacking in some respects. The scarcity of longitudinal data on Canadian immigrants over the years results in a number of cross-sectional census files being pooled, resulting in several quasi-longitudinal studies (e.g. Aydemir and Skuterud, 2004; Reitz, 2001b; Bloom et al.,1995). Longitudinal studies in the area of immigrant employment in Canada have been conducted with the use of surveys such as the Canadian Workplace and Employee Survey (Yoshida and Smith, 2005) and the Longitudinal Immigration Database (IMDB) (Dryburgh, 2005). Although longitudinal surveys such as the Survey of Labour and Income Dynamics (SLID) (Reitz and Verma, 2004) and the Longitudinal Survey of Immigrants to Canada (Grondin, 2007; Chui et al., 2004) have been employed in research on the economic integration of immigrants, they are typically examined in a cross-sectional manner. Hum and Simpson (2007) and Li (2003b) conduct longitudinal analyses through the use of the SLID and the IMDB data sets respectively; however, both of these studies focus on a comparison of earnings between the immigrant and Canadian-born populations. In addition, other studies using the LSIC data tend to present only descriptive analyses (Tran and Chui, 2003a, 2003b).

The use of longitudinal data is more relevant to the study of occupation as it allows one to study the process of the occupational attainment and general employment success of immigrants. Longitudinal microdata allow one to make population inferences with a focus on "within-subject"

changes. A focus on changes at the "within-subject" level allow for "inferences that are not as sensitive to between-subject variation" (Yee and Niemeier, 1996:2). A common assumption is that it will take immigrants a certain amount of time to undergo credential assessment procedures, certification processes, or retraining. Accounting for these issues, longitudinal data are useful for tracking the amount of time it takes to gain access to one's intended profession, and thus the process of employment, which is one of the primary objectives of this study.

A striking characteristic of the existing quantitative research in the area of immigrant employment is the considerable reliance on the Canadian Census as a primary data source. This is particularly prevalent in studies that focus on earnings differentials. The vast majority of the earnings analyses reviewed use census data from varying years, generally ranging from 1981 to 1996 (e.g. Frenette and Morissette, 2003; Reitz, 2003, 2001a; Li, 2000; Lian and Matthews, 1998). While census data may be useful in comparing specific results at different points in time, it also limits the various characteristics that may be tested. Yoshida and Smith (2005) state that there are significant measurement concerns for researchers using Canadian census data. Specifically, there are no questions about one's work experience and the way in which the Census of Canada measures language skills is deemed "unsatisfactory" (Yoshida and Smith, 2005:1220). Many researchers employing census data approximate the work experience of individuals by subtracting years of education from one's age minus an additional five or six years (e.g. Aydemir and Skuterud, 2004; Reitz, 2001a). While this approach is logical, it may not be as reliable for the immigrant population, which often has difficulty obtaining relevant work experience in Canada for several years after arrival. In addition, this measurement of work experience does not account for the *type* of work experience, which is particularly important to individuals seeking highly skilled employment. This is also discussed by Yoshida and Smith (2008:315) who state that the measurement of years of experience assumes that "all jobs provide the same opportunities for skill enhancement".

Measurement issues are also relevant to the use of earnings and occupation as dependent variables. As discussed above, studies that concentrate on earnings are difficult to compare due to the

range of ways in which income is measured. An examination of weekly wages (e.g. Aydemir and Skuterud, 2004) is very different from an examination of who falls above or below the low-income cut-off line (Kazemipur and Halli, 2001). Measurements of occupational attainment can also be problematic. Lautard and Loree (1984:335) assert that the broad classifications used to measure occupations "probably [mask] many important differences in the attainment of more precisely defined occupations" of different groups. While this study will measure earnings according to weekly wages, more specific groupings of occupation, in addition to occupational status, will also be examined.

Overall, the concerns related to methodology, data, and measurement inform the research design of this study. The use of the Longitudinal Survey of Immigrants to Canada (LSIC) plays an important role in addressing all of the issues discussed above. Because of its large sample size and access to immigrants across the country, the LSIC allows results to be generalized to the larger immigrant population in Canada. The longitudinal aspect of this data set also allows one to account for the *process* of immigrant economic integration, as immigrants' employment situation is likely to change over time. In particular, these data allow for an examination of the likelihood of a job match and the rate at which a job match occurs within an immigrant's first two years in Canada. Within the LSIC data set, up to nine jobs that immigrants have held since immigrating can be reported.

Some of the measurement problems addressed above are also improved with the use of the LSIC. Specifically, the work experience variable included in this research measures whether individuals have foreign work experience in their intended occupation. This is determined by matching their previous employment in their country of origin with their stated intended occupation. The measurement of language skills is also greatly improved with the LSIC data. Statistics Canada has developed language scores for the LSIC which integrate different measures of reading, speaking, and writing skills in both English and French (refer to Appendix B for details about the construction of these scores). Not only do these variables provide a continuous level of measurement for official language proficiency, but they also include aspects of language ability that are typically not assessed but are important skills required of many occupations (i.e. reading and writing abilities).

Summary

Overall, the literature reviewed points to some consistent findings regarding immigrant employment success in general. Of note, several studies find that both regions of origin and visible minority status have significant effects on both immigrants' earnings (e.g. Picot, 2004; Reitz 2001a; Pendakur and Pendakur, 2000) and occupational attainment (e.g. Chui et al., 2004; Boyd and Thomas, 2002; Thompson, 2000). Discussion of the influence that immigrants' education has on their employment success is generally concentrated on a discussion of the non-recognition of their credentials rather than their levels of education. This may be due to the fact that there has been a substantial increase in the number of immigrants entering Canada with high levels of education, particularly under the "skilled worker" admission class. Sex and admission class are not examined as frequently as one might expect; however, this may in part be due to the fact that many studies have focused on immigrant men and individuals who immigrate as skilled workers. Language proficiency in an official language has been found to have a positive influence on immigrants' occupational attainment in some studies (e.g. Grondin, 2007; Yasmin and Abu-Laban, 1992) and is generally treated as a human capital variable.

Earnings and occupational studies aim to assess the impact of various factors of immigrant success in the labour market. However, these two approaches differ in assessing immigrant employment success. Analyzing immigrant earnings may not indicate that an immigrant has obtained employment in his or her intended occupation, even when salaries are high. Because there are several different ways to measure income, some reports of earnings may include money from self-employment ventures, savings certificates or government sources (Statistics Canada, 1996). As a result, this can be problematic in equating positive income levels with employment success in terms of obtaining "appropriate" employment. An immigrant's earnings may come from a job that is completely unrelated to his or her training and qualifications. As a result of these issues, measuring whether or not an immigrant obtains employment in his or her intended occupation is important to the study of immigrant employment success.

Although a measurement of occupational attainment can provide more detail in determining

whether immigrants are employed in their intended occupations, it can also be problematic. When using this variable, one must avoid broad occupational groupings or outdated ranking systems. However, overall, examining occupation as a dependent variable is very useful in studying the employment success of immigrants and reaching a better understanding of immigrants' experiences in the Canadian labour market.

Two basic concentrations emerge from this literature review: (1) studies pertaining to immigrant employment success overwhelmingly focus on earnings differentials as opposed to occupational attainment and (2) occupation-based studies are generally more relevant in studying the "appropriate employment" issues that face immigrants. While both of these approaches identify relevant variables and reveal some similar conclusions with respect to the general difficulties encountered by the immigrant population in seeking employment, they also represent a divergence at some points. It is these differences that are perhaps more relevant to the study of immigrant employment success. By incorporating both earnings and occupational components into a study, a more complete understanding of the economic integration of immigrants in Canada can be reached.

Overall, this research is informed by this review of literature in several ways. The overview of the relationship between Canada's changing immigration policies and the economic demands of society at different points in time situates the employment success of immigrants as an historically important issue in Canadian social policy. The different approaches in studies measuring immigrants' economic integration are also useful in informing this study's multiple measurements of employment success. The deficiencies in much of the current literature with respect to the type of data used, as well as measurement issues, will largely be addressed with the use of the Longitudinal Survey of Immigrants to Canada. Lastly, the identification of variables relevant to the study of immigrant employment success is a significant contribution to the development of my statistical models. This review of literature provides some guidance regarding a number of variables of interest in studying the economic integration of immigrants in Canada, both with respect to various aspects of occupational attainment and earnings. A more thorough discussion of these variables and how they relate to the

research questions and hypotheses for this study are discussed in Chapter Four. The statistical models are presented in Chapter Five.

Chapter Four

Research Questions and Hypotheses

Information collected from the review of literature indicates that several factors may affect the employment success of immigrants to Canada. The variety of results from these studies and the gaps in the literature has led to the creation of several research questions and subsequent hypotheses. The majority of studies reviewed approach the subject from either a human capital or discrimination approach. While some refute the conclusions that others have made based on theoretical assumptions, most come to some agreement on several contributing elements of immigrants' employment success. The following questions and hypotheses are informed by both the results of empirical studies and by theoretical inference. In the case of hypotheses for variables that have not been studied in previous literature (e.g. those relating to specific occupational characteristics), hypotheses are formed based on theoretical assumptions. The specific research questions that guide the data analyses are presented below. In general, references to the "employment success" of immigrants refer to the four dependent variables measuring this concept (likelihood of a job match, rate at which a job match occurs, income, and occupational prestige) unless otherwise specified.

Research Questions

1. Do immigrants' ascribed characteristics (sex, age, visible minority status, region of origin) influence their employment success in Canada? If so, is this an indication of discrimination?
2. Does the admission category under which an individual immigrates to Canada have an influence his or her employment success in Canada? Do those who immigrate under the "Skilled Worker" category experience greater employment success than other immigrants?
3. Do immigrants who live in a major CMA (i.e. Montreal, Toronto, or Vancouver) experience greater employment success than immigrants who live elsewhere in Canada?
4. Are immigrants with higher levels of education less likely to obtain job matches than immigrants with lower levels of education? Do immigrants with higher levels of education obtain job matches at a slower rate than those with lower levels of education?

5. Do immigrants with higher levels of education obtain employment with higher incomes or occupational prestige scores than those with lower levels of education?
6. Do immigrants with foreign work experience in their intended occupations experience greater employment success than immigrants without previous work experience in their intended occupations?
7. Does English and/or French language proficiency have a significant and positive relationship with an immigrant's employment success?
8. Are immigrants who seek high-status occupations less likely to obtain job matches immigrants than those seeking lower status occupations? Do immigrants who seek high-status occupations obtain job matches at a slower rate than those seeking lower status occupations?
9. Are immigrants whose intended occupations involve high aptitudes or high levels of job task complexity less likely to obtain job matches than those whose intended occupations involve lower aptitudes and job task complexity? Do they do so at a slower rate than immigrants whose intended occupations involve lower aptitudes and job task complexity?
10. Does the number of jobs an immigrant holds in Canada have a positive or negative relationship with an immigrant's employment success?
11. What factors (i.e. ascribed, demographic, human capital, and/or number of jobs held) influence the change in income and prestige scores between an immigrant's first job and most recently held job in Canada?

Research Hypotheses

The hypotheses stated here focus on the general relationships between the independent or intervening variables and the dependent variables for this study. For the purposes of simplicity, the hypotheses pertaining to ascribed and demographic factors and human capital factors use the umbrella concept of "employment success" to refer to the likelihood of obtaining a job match, the rate at which a job match occurs, income, and occupational prestige. The hypotheses pertaining to the occupational characteristics of immigrants' intended occupation use the term "employment success" to refer only to

the likelihood of obtaining a job match and the rate at which a job match occurs. Two sets of hypotheses are required for the "Level of Education" variables as some of the assumptions associated with obtaining a job match differ from the assumptions of obtaining a high income or occupational prestige score in Canada. Each of the following hypotheses relates to a particular component of the statistical models presented in Chapter Five.

The logistic regression (likelihood of a job match) and event history models (rate at which a job match occurs) are divided into four sets of variables for the logistic regression and event history models: (a) demographic and ascribed characteristics, (b) human capital variables, (c) the SES of intended occupation, and (d) other occupational characteristics of intended occupation. Because the occupational characteristics of immigrants' intended occupations are not directly relevant in determining their incomes or prestige scores, only two sets of predictors are entered in the regression models: (a) ascribed and demographic characteristics and (b) human capital variables, as well as the number of jobs an immigrant has held since immigrating. The hypotheses for the ascribed and demographic characteristics and most of the human capital factors are the same across all of the models that test different measures of employment success. In addition, due to the complexity of the economic integration of immigrants to Canada, there is not one specific theoretical approach informs the entire set of variables that are tested. With this in mind, the following hypotheses each represent a part of what affects the overall employment success of immigrants. Figure 2.3 in Chapter Two provides a diagram of how the theoretical perspectives inform the research hypotheses. The "Methodology" chapter (Chapter Five) will also contribute to the understanding of the following hypotheses.

Ascribed and Demographic Characteristics

In a society that espouses the values of an "equal opportunity" meritocracy, one might expect that ascribed or demographic characteristics such as age, sex, visible minority status, or region of origin would not be determining factors in an immigrant's employment success in Canada. Human capital theory upholds this notion, arguing that achieved characteristics such as one's education and work experience are the main contributing factors to an individual's success in the labour market (Krahn and

Lowe, 1998). However, the discrimination thesis asserts that it is discriminatory actions based on ascribed characteristics that lead to some individuals having greater success than others in receiving "appropriate" employment (particularly in professional occupations) or promotions. The principles of the discrimination thesis assume that barriers to immigrant employment are primarily rooted in biases for or against certain ascribed characteristics. Based on the discrimination thesis, it is hypothesized that:

1. Age has a negative relationship with immigrants' employment success; that is, the older an immigrant is the lower employment success he or she experiences.
2. Sex: Male immigrants experience greater employment success than female immigrants.
3. Visible minority status: "Non-visible minority" immigrants experience greater employment success than "visible minority" immigrants.
4. Region of origin: Immigrants from "traditional" source regions (e.g. North America) experience greater employment success than immigrants from non-traditional source regions (e.g. Africa, Asia).

An additional variable is represented in the ascribed and demographic factors. The admission class under which an individual immigrates to Canada is also entered into the statistical models. The class under which an individual immigrates influences exactly how he or she is assessed for entry into Canada. For example a "Skilled Worker" is primarily assessed in terms of his or her credentials and potential to contribute to the Canadian economy. However, individuals who enter under the "Family" or "Refugee" class are assessed based on their familial connections in Canada or their need to leave their home country due to war or oppression. Therefore, the research hypothesis for this variable is as follows:

5. Immigrant Admission Class: Immigrants who apply for admission into Canada under the "Skilled Worker" class experience greater employment success than those who apply under other admission classes.

The last variable entered in the first set of predictors is the Census Metropolitan Area (CMA) variable. This variable is relatively exploratory as previous literature tends to compare the employment

success of immigrants between the three major CMAs (Montreal, Toronto, and Vancouver) or between different sizes of CMAs. This study instead examines if there are significant differences between the employment success of immigrants who live in one of these major CMAs and those who live in other areas of Canada. Some previous literature suggests that immigrants have greater opportunities and resources in Canada's major CMAs, often connected to ties to their ethnic communities, and thus enjoy greater success when integrating into Canada's labour market (e.g. Li, 2003b). Thus, the research hypothesis for this variable is:

6. Living in a Major CMA: Immigrants who live in a major CMA (Montreal, Toronto, or Vancouver) experience greater employment success than immigrants who live elsewhere.

The first four hypotheses in this section are representative of different types of discrimination based on age, sex, visible minority status, and place of birth. The discrimination thesis is useful in explaining these potential relationships if all other factors in the model are equal (i.e. when human capital factors and different occupational characteristics of the intended occupation are controlled). If the hypothesized relationships are found to be significant in the data analyses, it may be argued that various forms of discrimination play a role in the employment success of immigrants in Canada.

The fifth hypothesis is based primarily on structural factors associated with the immigration process in Canada. Because different admission classes are subject to assessment based on different factors, it is expected that individuals who gained entry based on their perceived ability to successfully integrate into the Canadian labour force experience greater employment success than those who were admitted under different criteria. The sixth hypothesis is relatively tentative as it is considered to be an exploratory variable.

Human Capital Factors

As discussed in Chapter Two, human capital theory associates employment success with achieved characteristics that are relevant to the labour force. Based on the principles of merit, the human capital approach assumes that individuals are judged based on these relatively objective criteria. In this respect, discrimination is not believed to be a factor in explaining why some individuals are more

successful in gaining employment in their intended occupations than others. However, based on the findings of previous research the assumptions of human capital theory have been questioned with respect to the immigrant population. Of primary concern is the difficulty immigrants experience in getting their non-Canadian educational credentials recognized by employers and/or professional bodies. With this in mind, the hypotheses for the human capital section of the proposed logistic regression and event history models do not necessarily follow the typical assumptions of human capital theory. However, the hypotheses regarding the expected relationship between level of education and income and prestige are based on human capital assumptions. In addition, a characteristic determined by previous research to be of particular importance to immigrants' occupational attainment is proficiency in an official language. Thus, the following relationships thus are hypothesized for the human capital factors:

1a. Level of education (Applied to Logistic Regression and Event History Models): The higher one's level of education, the less employment success he or she experiences. This hypothesis is based on the assumption that immigrants encounter more difficulties when trying to get higher educational credentials accepted by employers.

1b. Level of education (Applied to Income and Prestige Regression Models): Level of education is positively related to the income and occupational prestige score of an immigrant's employment in Canada. Therefore, the higher an immigrant's level of education, the higher his or her income or occupational prestige score. This relationship is expected based on the general assumptions of human capital theory. Despite the fact that immigrants' educational credentials may not be fully recognized, it is assumed that immigrants with higher levels of education still obtain higher incomes and higher status employment than those with lower levels of education.

2. Previous work experience in intended occupation: Immigrants with work experience in their intended occupations prior to immigration experience greater employment success than immigrants who do not have previous experience in their intended occupation.

3. Official language proficiency: The higher an immigrant's language proficiency score in an official

language (English or French), the greater employment success he or she experiences in Canada. Refer to Appendix B for details on language proficiency scores.

These hypotheses account for whether human capital factors have any significant influence on the employment success of immigrants to Canada. If the hypothesized relationships for official language proficiency and previous work experience have a significant effect on immigrants' occupational attainment, one may argue that human capital theory explains at least part of the differences in immigrant employment success. Also, if the hypothesis regarding the effect of level of education in 1a is disproved, the assumptions of human capital theory would be supported. However, it is expected that both ascribed and achieved characteristics will play a role in the explanation of immigrant employment success.

Occupational Characteristics

The extent to which occupational characteristics have been examined in research on immigrant employment success is limited. Some studies have examined factors such as skill level (e.g. Lian and Matthews 1998) or industry (e.g. Yoshida and Smith 2005, Li 2000) when examining the effect of occupational characteristics on immigrant employment. However, these characteristics are in reference to the occupations immigrants hold in Canada and are compared with that of native-born Canadians. One study identifies ten broad occupational groups of immigrants prior to immigration as a potential explanatory variable (Chui et al. 2004). Chui et al. (2004) find that only a small proportion of immigrants obtain employment similar to their pre-migration occupational group. This study concludes that immigrants seeking work in management occupations, arts, culture, recreation and sport occupations, and occupations in social science, education, government service, and religion have more difficulty finding employment that is similar to their jobs prior to immigrating.

The variables that are used to study occupational characteristics address these factors in reference to immigrants' intended occupations. Therefore, conclusions reached by studies that focus on occupational differences of jobs already held in Canada, and subsequently compared with the Canadian-born population, may not be applicable. In addition, the occupational characteristics

examined refer to the aptitudes required of an occupation, as well as the complexity of job tasks concerning data/information, interaction with people, or manipulation of "things" (i.e. D.P.T. scores), as well as the socio-economic status (SES) score of immigrants' intended occupations. None of these factors have been studied as potential predictors of immigrant employment success within the reviewed literature. Due to the lack of previous research utilizing these variables, the hypotheses will be determined solely by theoretical inference. Thus, the general assumption guiding these hypotheses is that the higher level of skill or responsibility required of an occupation, the less employment success an immigrant will experience.

The hypotheses formulated for the aptitudes, D.P.T. scores and occupational SES scores are informed primarily by Weber's theory of social closure and the discrimination thesis[3]. The general assumption that underlies the use of the occupational characteristics variables is that immigrants' skills and qualifications may not be recognized as equal to those of Canadians in the Canadian labour market. Discrimination based on this premise may be due to direct bias against immigrants or discriminatory actions based on a lack of knowledge of the qualifications and skills they possess. In either case, the discrimination perspective is useful in explaining any relationships that may be present between the occupational characteristics of immigrants' intended occupations and immigrant employment success. Weber's (1968) concept of "social closure" can also be used to further develop hypotheses for these factors. As discussed in Chapter Two, social closure may occur as the dominant group in a society controls the academic and professional credentials required for entry into many occupations. Therefore, one may infer that the dominant group may devalue the qualifications obtained outside of its own society. Consequently, these actions can prevent immigrants from obtaining a job match if their intended occupations require higher responsibilities and specialized skills. This could be the result of placing greater value on Canadian credentials, but may also function

[3] Human capital theory could also be applied to these variables. That is, immigrants whose jobs are associated with high SES scores or high levels of task complexity likely have higher levels of human capital; thus, less employment success for these immigrants may be interpreted as a devaluation of their credentials and training. However, results for these analyses will be interpreted in terms of potential discrimination and exclusionary social closure which may be inferred to be the reason for the devaluation of immigrants' qualifications.

as a way of maintaining a system where high-status occupations are obtainable only by individuals in the dominant group.

The hypotheses provided here are general with the acknowledgement that some of the occupational characteristics are multi-dimensional in nature. The following are the hypothesized relationships between the occupational characteristics of immigrants' intended occupations and their employment success (in terms of the likelihood of obtaining a job match and the rate at which a job match occurs):

1. Socio-economic status (SES) score of immigrants' intended occupations: The higher the SES score associated with an immigrant's intended occupation, the less employment success he or she will experience in Canada. This relationship is based on the assumptions of social closure which presume that those who are not part of the "dominant" group in society have more difficulty obtaining higher status positions.
2. Occupational aptitudes required for immigrants' intended occupations: The higher the aptitude required for an immigrant's intended occupation, the less employment success he or she experiences.
3. Data/Information, People, or Things scores for immigrants' intended occupations: The higher the complexity of working with data/information, people, or things involved with an immigrant's intended occupation, the less employment success he or she experiences.
4. The total number of jobs held since immigration is an exploratory variable. However, considering that immigrants are assumed to have greater employment success when they have more Canadian experience, the relationship between number of jobs held and employment success is expected to be positive. That is, the more jobs an immigrant has held since immigrating, the greater his or her employment success.

These hypotheses share the general assumption that immigrants' qualifications and skill sets are devalued within the Canadian labour market. In general, they assume that immigrants who intend to gain employment in occupations that require a high degree of responsibility and specialized ability

will experience less employment success than those whose intended occupations do not. If any or all of the above hypotheses are supported by the data, social closure theory, and by extension the discrimination thesis, can then provide useful explanations, particularly with respect to the devaluation of immigrants' credentials. In particular, social closure will be evident if immigrants who seek high-status occupations (i.e. occupations with high SES scores) have less employment success than those who seek lower-status occupations.

Summary

In this section, eleven research questions and corresponding hypotheses are presented, guided primarily by theoretical assumptions and findings from the literature review. The hypotheses conclude that many factors may be useful in explaining the employment success of immigrants to Canada including ascribed, demographic, achieved, and occupational characteristics. The discrimination and human capital theories are employed to explain the potential relationships between the variables. Weber's notion of social closure is also used to develop hypotheses relating to the influence that occupational characteristics have on immigrants' employment success. In general, it is anticipated that both ascribed and achieved characteristics may play a role in immigrants' employment success. Because the relationship between occupational characteristics and the employment success of immigrants is a new contribution to this field, these hypotheses are guided purely by theoretical assumptions. In this respect, the effect (if any) of occupational characteristics on immigrant employment success is less predictable than the potential influence of ascribed, demographic, and human capital factors.

Chapter Five

Research Methodology

The following chapter addresses methodological issues surrounding the survey data used in data analyses for this study. The statistical models used to examine immigrant employment success are also discussed. Details such as the sampling strategies, data collection methods, and coding of the Longitudinal Survey of Immigrants to Canada are addressed first. Following the discussion of the LSIC, the definitions of both the dependent and independent variables are presented. Each statistical approach is then discussed in turn and the chapter concludes with the specific statistical models that are employed for this study.

Survey Methodology: The Longitudinal Survey of Immigrants to Canada

The Longitudinal Survey of Immigrants to Canada (LSIC) was designed through collaboration between Statistics Canada and Citizenship and Immigration Canada (CIC) under the Policy Research Initiative (Statistics Canada, 2006). The main objective of the LSIC is to study immigrants' experiences when adapting to Canadian society during their first four years in Canada. The LSIC covers many factors that may be relevant to this process including economic and social variables. Questions included on the LSIC address a respondent's situation both prior to arrival in Canada and their situation at the time of the interview. This research utilizes data from the first two waves of the LSIC as the third wave was not yet released at the time of analysis. Wave One of the LSIC was conducted six months after a respondent's arrival in Canada while Wave Two was conducted two years after his or her arrival.

The unit of analysis for the survey is the individual; that is, each immigrant that has been selected to respond to the survey. The respondent is considered the "person most knowledgeable" for every question except for those questions concerning income (Statistics Canada, 2006:7). If the respondent does not consider himself or herself the most knowledgeable person in the household regarding issues of income, the individual that is the "most knowledgeable" is the respondent for these questions. Immigrants who have been selected to participate in the LSIC study represent all Census Metropolitan Areas and "non-remote Census Agglomerations" (Statistics Canada, 2006:15).

Target Population

A representative sample of 20,300 new immigrants to Canada was selected in order to produce reliable estimates. The target population for the LSIC is immigrants who meet the following criteria:

- Respondents arrived in Canada between Oct. 1, 2000 and Sept. 30, 2001
- Respondents were age 15 or older at the time of arrival
- Respondents landed from abroad and applied through a Canadian Mission Abroad

Due to these criteria, any individuals who applied from *within* Canada were excluded from the LSIC (i.e. individuals who may have been in Canada for some time before officially "landing"), as well as refugees claiming asylum from within Canada. These individuals likely have a different experience in adapting to Canadian society than those who have recently arrived. These criteria account for approximately 164,200 of the 250,000 immigrants to Canada during this time period (Statistics Canada, 2006:15). At the time of migration, Canada's employment rate was higher than it was in the late 1990s and increased in between 2002 and 2003 (Treasury Board of Canada Secretariat, 2004), the year of the second interview for most immigrants. Thus, the cohort of immigrants studied arrived in Canada during a time of relative opportunity in the labour market, although this varied between provinces. Specifically, Quebec and the Atlantic provinces had the highest unemployment rates in 2003 while Manitoba, Alberta, and Saskatchewan at the lowest.

Sampling Frame

An administrative database from Citizenship and Immigration Canada is the sampling frame for the LSIC. This database, known as the Field Operation Support System (FOSS), contains information on all landed immigrants to Canada. Data in the FOSS include such things as immigrants' names, ages, countries of origin, date of landing and intended province of destination in Canada. Data for one of the main variables in this study, immigrants' intended occupations upon immigrating, are also obtained from the FOSS database. While the majority of the data that have been collected for the LSIC are based on direct questions answered by the respondent, there are some variables that have been derived from the FOSS.

Survey Design and Sampling

The sample for the LSIC was created using a two-stage stratified sampling method. The first stage selects "Immigrating Units" (IU), using a probability proportional to size (PPS) method. The second stage involves selecting one member within each selected IU. This member is identified as the "longitudinal respondent" and is contacted to participate in the LSIC (Statistics Canada, 2006:15). Only the longitudinal respondent that is selected by this process is followed throughout the survey as no interviews are conducted with other members of the Immigrating Unit.

Three stratification variables are used in selecting respondents. The first is the month of landing in Canada; one cohort of immigrants corresponds with each reference month. Therefore, there are 12 cohorts of immigrants within the LSIC. Within each of these months, two additional stratification variables are used: intended province of destination and class of immigrant. The intended province was grouped into five categories: Quebec, Ontario, Alberta, British Columbia and the remaining provinces excluding the three territories. The classes of immigrant are grouped according to six categories: family class, economic-skilled, economic-business, government-sponsored refugees, other refugees, and other immigrants. A stratum is created by the intersection of the above categories resulting in 30 strata for each cohort of immigrants (province*class) and a total of 360 strata (month*province*class) (Statistics Canada, 2006:16).

The sample can be separated into two components: the "core" and the "additional" samples (Statistics Canada 2006:16). The core sample reflects the target population. The additional samples represent certain subgroups that were determined by considering the expected sample distribution at the time of Wave 3 as well as accounting for various requirements of federal and provincial government departments. The following subgroups have been over-sampled to account for these issues: government sponsored refugees, refugees other than government sponsored, contractor and investor immigrants (economic-business class), family immigrants in British Columbia, overall immigrants in Alberta, and economic immigrants in Quebec (economic-skilled and economic-business classes).

Longitudinal Sample

The LSIC was designed for immigrants to be interviewed at three separate times: six months, two years, and four years after landing in Canada. Only immigrants who responded to the Wave 1 interview were traced for the Wave 2 interview. This is referred to as a "funnel-shaped" approach (Statistics Canada, 2006:16). This approach was chosen because the survey collects data on attitudes and perceptions at different points in time in the immigration process. By collecting these data longitudinally, as opposed to a cross-sectional data set, issues with recall and responses errors will be minimized.

The first wave of the LSIC was conducted by Statistics Canada between April 2001 and May 2002. The majority of interviews (68%) were conducted face-to-face while the remaining interviews were conducted over the phone for various reasons (e.g. location of respondent, specific language requirements). Interviews were conducted in one of the fifteen languages most frequently spoken by the target population: English, French, Chinese (Mandarin and Cantonese), Punjabi, Farsi/Dari, Arabic, Spanish, Russian, Serbo-Croatian, Urdu, Korean, Tamil, Tagalog, and Gujarati. These languages cover approximately ninety-three percent of the immigrant population in Canada (Statistics Canada 2006:20). The average interview lasted about ninety minutes.

For Wave One, 12, 040 respondent records were determined to be complete enough to be kept in the final data file out of the original sample of 20,300. Of the original sample, 2,120 cases were identified as "non-respondents", referring to those respondents who were located but for a given reason could not respond to the interview. There were also 5,751 cases determined to be "unresolved". This refers to instances where there was no contact with the selected respondent and no information was collected regarding their whereabouts. The remaining cases were from the "out-of-scope" population which includes immigrants in the target population who are not included in the population of interest due to the fact that they are no longer residing in Canada or they are deceased, institutionalized, etc. (Statistics Canada, 2006:29). This population meets all of the criteria but is not included in the calculation of final weights for the population of interest.

Data collection for the second wave of the LSIC was conducted between December 2002 and December 2003. In this wave of the survey, just over half of the interviews were done in person, which is lower than the number of surveys conducted face-to-face in Wave 1. The length of the interviews for Wave 2 also decreased, with most interviews taking approximately 65 minutes to complete (Statistics Canada, 2006:32). This is likely due to a number of questions that respondents only needed to answer once at the beginning of the study (e.g. sex, visible minority status, country of origin). From the original sample of 12, 040 respondents from Wave 1, the second wave had a total of 9,322 respondents. Therefore, 2,718 cases were lost to attrition. In Wave 2 there were 1,370 non – respondents and 1,148 unresolved or untraceable cases. Two hundred cases were "out-of-scope" individuals.

Data Collection

The data for the LSIC were collected using computer-assisted interview (CAI) technology. The CAI technology "allows for high quality collection of complex population-specific content sections" (Statistics Canada, 2006:17). An example of this is the relationship grid produced by the system collecting the relationships of all household members to each other. The CAI system has two parts: (a) case management and (b) survey-specific components.

The case management system controls the "case assignment" (i.e. the individual selected to participate) and the data documentation of the survey. It automatically records information for each contact (or attempted contact) with respondents and provides reports for the management of the collection process. This system routes the questionnaire applications and sample file from headquarters to regional offices to interviewer laptops. The responses are then sent from the laptops through a reverse route to headquarters. All data are encrypted to ensure confidentiality.

The survey-specific components of the CAI system include locating, making contact with, and tracing respondents. To locate respondents, a contact questionnaire was designed that requires the immigrant's address in Canada and the address of a contact person in Canada. The questionnaire also contains a consent statement to allow Statistics Canada permission to access information held by other

federal or provincial organizations for tracing purposes only. The first contact with the respondent was made by using the address and telephone number provided on the sample file. The interviewer confirmed that the respondent lived at that address and took further steps to ensure it was the proper respondent by verifying the birth date and landing date of the individual. To trace respondents, teams were designated to follow up on tracing sources in order to locate the respondent. Electronic phone books were found to be the only effective public source used for tracing. The following sources were used to trace respondents: administrative files from CIC, survey contact questionnaires, addresses from provincial health cards, and electronic phone books (Statistics Canada, 2006).

Coding

Three different levels of coding were used in Wave One: open-ended questions, census-type questions, and text recorded in the "Other-Specify" fields. The open-ended questions were recorded by the interviewer in the words provided by the respondent. These were then converted into codes at "Head Office" using various standard classifications (e.g. the Standard Occupational Classification) to make the data comparable. To ensure consistency, these codes have only one valid description in English and French. The census-type variables include questions that were also asked on the 2001 Census (e.g. language, religion, ethnic group). For most of these questions a "pick-list" was included in the questionnaire. If the response was not in the list, the interviewer recorded the proper response in the "Other-Specify" category. These data were coded according to the corresponding Census code set in order to match the 2001 Census data dictionary. The data that were collected from the "Other-Specify" category were often used to create new categories for the original questions if it accounted for five percent of all answers (Statistics Canada, 2006). These categories were added to subsequent waves to ensure consistency. Variable-specific code sets were created for each variable with an "Other-Specify" response category, and codes were assigned from that list. In some cases the "Other" fields may have been coded to an existing category when the response represented the same concept.

Scope of Study

The scope of the study is limited to those individuals who are between the ages of 25 and 64. This age range was chosen because the main focus of the study is on immigrants within the labour force. Ages 25 to 64 are identified as the "prime" working age of most individuals in the labour market. Many of those under 25 are still involved in obtaining education or training for their intended occupations. Those over 64 are typically retired and have left the work force. When cases that represent individuals not within the chosen age range are removed, the sample size decreases from the original 9,322 cases to 7,395 cases.

Due to attrition between Waves 1 and 2, only the respondents who participated in both waves of the survey have been included in the analyses. Using individuals who only participated in Wave One would not be useful as longitudinal analysis requires responses from individuals over time. This study also limits the sample in two additional ways. First, only those individuals who have stated an intended occupation on their application to immigrate to Canada are included in the sample. This is a relevant limitation to the study because it is primarily focused on whether immigrants obtain employment that matches their intended occupations. This limitation of the sample therefore excludes respondents who are identified as "not in the labour force" (e.g. students, homemakers) and those who immigrated under the "open employment authorization" category. Individuals in the latter group do not necessarily immigrate with a specific intended occupation for which they are already trained and will pursue upon landing in Canada and are thus not necessarily seeking employment in a particular occupation. This limitation leads to a loss of several cases in the sample. The combination of the age range and the "intended occupation" limitations results in a sample size of 3,535 cases. Second, only those immigrants who have held at least one job since arriving in Canada are included in the sample. This limitation is an attempt to focus on only those individuals who are engaged in the labour force. While this limitation may exclude some immigrants who have not yet found employment, it also focuses on only those who are actively participating in the Canadian labour market. Therefore, those immigrants

who may not be participating in the workforce because they are pursuing further education, training, or certification procedures are excluded. This limitation results in a final sample size of 2,985 cases.

Definition and Measurement of Dependent Variables

The measurement of immigrant employment success is divided into four separate dependent variables for this research. This is done in an effort to obtain information about several aspects that are often associated with one's success in the job market. The dependent variables for this study include the likelihood of obtaining a job match (logistic regression models), the rate at which a job match occurs (event history models), and the income and occupational prestige of immigrants' most recently held jobs in Canada and changes in these variables over time (OLS regression models). Although there may be disagreement about which of these aspects is most important in assessing "employment success", all of these variables are useful in reaching a more complete understanding of the process of employment success for immigrants. Because these variables can be interpreted in different ways, the following section explains how they are defined and measured within the context of this research. A more specific account of how each predictor variable is defined and/or created can be found in Appendix A.

(a) **Job Match Variables**: The job match variables identify whether a respondent has obtained employment in Canada in the same occupation identified as his or her "intended occupation" according to four different occupational classifications. The issue of immigrant employment has largely centred on whether immigrants are employed in occupations for which they are trained and qualified. The job match variable used in this research indicates whether this has in fact occurred. The occupations are coded according to the 2001 National Occupational Classification (NOC) codes. Variables at the unit group (four-digit) and major group (two-digit) levels of the NOC as well as the skill type and skill level classifications of the NOC are used.

The skill type and skill level job match variables are created according to the categories assigned by the NOC Career Handbook (2001). The term "skill type" refers to subdivisions among occupations that assign each occupation to a group identified according to the general field of work (e.g. "Health Occupations" or "Occupations in Social Service, Education, Government Service, and

Religion"). A complete listing of skill types (nine categories) can be found in Appendix C. The term "skill level" refers to the type and/or amount of education or training required to work in a particular occupation. The NOC identifies four skill levels ranging from "Short work demonstration/on the job training and/or no formal education" to "University degree". A complete list of skill levels can be found in Appendix D. Identifying job matches according to skill type and skill level provides more information on whether immigrants obtain employment that relates to their general field of interest and/or their qualifications and level of skill during their first two years in Canada.

The job match variables are dichotomous variables coded "1" if a job match has occurred and "0" if a job match has not occurred within an immigrant's first two years in Canada. Because a respondent can report up to nine jobs held within his or her first two years, the job match variables reflect whether any of the jobs an immigrant has held during this time match the unit group, major group, skill type, or skill level of his or her intended occupation. These variables are the dependent variables for the logistic regression models and are also used to determine the hazard rate in the event history models.

(b) **Number of Days Since Arrival Until a Job Match Occurred**: This variable is used in the event history analyses. Because a comparable measure of time is needed for these analyses, a fixed "date" scale was constructed in which the dates of immigrants' arrival in Canada and first days of employment were assigned numbers. This scale ranges from the first day of immigration to the last day of interviews. The variable was then constructed by subtracting the numerical start date of a job match from the numerical date of arrival. For example, if an immigrant immigrated on day 40 and started work in a job match on day 100, the variable would indicate that he or she took 60 days to obtain a job match.

(c) **Income**: The use of "income" as a dependent variable is done with the acknowledgment that one's income is not necessarily an indication that an immigrant is employed in his or her intended occupation. While income is often used in studies of inequality between immigrants and native-born Canadians, this study uses this variable with the recognition that one's level of income is only one

dynamic of employment success. Previous studies suggest that if an immigrant obtains a level of income comparable to that of native-born Canadians, he or she is not experiencing inequality in the labour force (e.g. Frenette and Morissette 2003). However, one may obtain a respectable income in an occupation that is not one's intended occupation. In this case, one may feel as though he or she has not been successful in the labour force due to not being employed in his or her intended occupation. To argue this point further, one would need to study individuals' personal opinions of what is most important to their notion of employment success; however, this is not within the scope of this study. Therefore, unlike previous studies, this research uses the dependent variable of "income" under the assumption that it is one of several dimensions of immigrant employment success, rather than the sole indicator.

As a dependent variable, "income" has been measured in numerous ways throughout the literature. The data provided in the LSIC offer various options for measuring income, however, some of these measures are not comparable from one respondent to another (i.e. while some may report weekly earnings, others report annual salary). In an effort to obtain more consistent measurements of income, the LSIC provides a variable derived from other responses on income. This income variable identifies the weekly wage of each job that a respondent has reported. It is this derived variable that is used to measure the variations in respondents' incomes over time. The weekly wages are also logged to obtain a normal distribution.

(d) **Occupational Prestige**: The concept of occupational prestige has been debated among sociologists for many years. Occupational prestige is determined by two factors in a given society: (i) the existence of differentiated tasks and roles, manifested as distinct occupations and (ii) a structure in how some occupations are valued or preferred over others, or their "social standing" (Barber, 1978). Occupational prestige, for the purposes of this study, is defined as the value individuals assign to occupations relative to others, based on the perceived social standing of different occupations.

The use of occupational prestige as a dependent variable then indicates that three assumptions are being made about our society. The first is that there are fairly agreed upon notions of which

occupational roles are more valued than others in our society. The second assumption is that most individuals are fairly informed of what is involved with most of the occupational roles in their society. The third assumption is that most individuals can estimate the "functional significance" of different occupations within society (Barber, 1978:78).

The occupational prestige scores that are applied to the occupations in the LSIC data set are from a newly developed prestige scale based on Canadian respondents (Goyder and Frank, 2007). This scale was constructed according to how respondents ranked the twenty-six major groups of the NOC according to their social standing. These occupational prestige scores are based on a scale ranging from zero to one hundred. The prestige variable was created by assigning these scores to the occupations held by respondents, based on their major group classification in the NOC.

Definitions and Measurements of Independent and Intervening Variables

The following section provides definitions and levels of measurement for the independent and intervening variables that are used in the statistical models for this study. These variables represent the ascribed, demographic, achieved, and occupational characteristics that have been identified as potential predictors of the dependent variables being examined. Further details about these variables can be found in Appendix A.

(a) **Sex**: Sex is measured as a dichotomous variable with "1" representing males and "0" representing females.

(b) **Age**: Age is measured as a continuous variable. The age range is between ages 25 and 64.

(c) **Visible Minority Status**[4]: Visible minority status is measured as a dichotomous variable. Visible minority status is a self-reported variable in the LSIC. A "1" is assigned for visible minorities and a "0" is assigned for non-visible minorities.

[4] Although further differentiation of visible minority status is preferable for a greater understanding of the disadvantages that specific groups experience (Hum and Simpson, 2007), small numbers of immigrants in some of the visible minority categories provided in the LSIC has prevented finer distinctions for this variable.

(d) **Region of Origin**[5]: Each region of origin represents a separate, dichotomous variable. The "North America" region is the reference category used in the statistical analyses. Region, as opposed to country, of origin is used to avoid low counts in some countries. The region of origin variable that is used for this research is based on the Immigrant Database groupings for region of origin. The eight regions are as follows: (i) North America (United States and Mexico, although respondents are largely from the U.S.), (ii) Europe (Western, Eastern, Northern, and Southern Europe, and the United Kingdom), (iii) Asia, (iv) Middle East, (v) Africa, (vi) Caribbean and Guyana, (vii) South and Central America, (viii) Oceania (includes Australia).

(e) **Admission Category**: Each of the admission categories is coded as a separate dichotomous variable. The "Skilled Worker" class is used as the reference category in the statistical analyses. Some of the original categories have been collapsed into more general groupings resulting in five categories: Family Class, Provincial Nominees, Skilled Workers, Business Immigrants, Refugees or Others. Refer to Appendix A for further details on who is included in each of these groups.

(f) **Census Metropolitan Area (CMA)**: The CMA variable indicates whether or not a respondent lives in one of the three major CMAs in Canada (i.e. Montreal, Toronto, or Vancouver). Those who live in one of the three major CMAs are coded "1" and those who live elsewhere are coded "0".

(g) **Level of Education**: The level of education variables represent the highest level of education an immigrant has obtained outside of Canada. Therefore, this is more of an indicator of the value of foreign education credentials. Each level of education is coded into a dichotomous variable with the "Bachelor's Degree" category used as the reference category in the statistical analyses. These

[5] While region of origin is sometimes used to infer visible minority status (e.g. Pendakur and Pendakur, 1998), these two concepts are considered conceptually different for this study. Others have also included both variables in regression models (e.g. Thompson, 2000). Concerns over multicollinearity between these two variable were addressed by examining the standardized coefficients and standard errors when visible minority was both included and excluded from the model. No serious indication of multicollinearity was found. In addition, a cross-tabulation between these variables indicated that only the Caribbean or Guyana variable could be identified as primarily a "visible minority" region; to a lesser extent, Asia also represented a primarily "visible minority" region. Overall, there was a considerable number individuals represented in both the "visible minority" and "non-visible minority" categories across the remaining regions. This may be due in part to the large number of nations represented by the general "region of origin" variable and may also be an indication of the fact that few nations are ethnically or racially homogenous in current times (Anderson and Frideres, 2000).

dummy variables include the following: (i) High school diploma or lower, (ii) Some trade school, college or university, (iii) Trade school or college graduate, (iv) Bachelor's Degree, and (v) Master's degree, professional degree or higher. Refer to Appendix A for more detailed definitions of these groupings.

(h) **Previous Work Experience**: Previous work experience is a dichotomous variable that measures whether or not an immigrant's past job in his or her country of origin matches his or her intended occupation. A "1" is assigned if an immigrant's past job was the same as his or her intended occupation and a "0" is assigned if it was not. This variable is considered a proxy for measuring the value of foreign experience to an immigrant's employment success in Canada.

(i) **Language Proficiency**: Language proficiency in both French and English are measured as separate continuous variables. Language proficiency variables are provided by Statistics Canada and are derived from a series of language questions from the LSIC in which immigrants reported their language abilities in various situations. These questions measure three different aspects of language proficiency: reading, writing, and speaking abilities in English and French. The scores originally ranged from 0 to 1 but were recoded from 0 to 100 to provide scores that are easier to interpret (i.e. the original score was multiplied by 100). The higher the value, the higher language proficiency one has. For a more detailed explanation of Statistics Canada's scores, refer to Appendix B.

(j) **Occupational Aptitudes Scores**: Aptitude scores are based on the abilities required for each aptitude in relation to the normal curve of the Canadian working population. These scores are obtained from the NOC Career Handbook. Scores from one through five are assigned for each of the nine aptitudes identified by the NOC and represent the following:

1 = The lowest 10% of the working population;
2 = The lowest third of the working population, exclusive of the lowest 10%;
3 = The middle third of the working population;
4 = The upper third of the working population, exclusive of the highest 10%;
5 = The highest 10% of the working population.

Because these scores are ordinal and based on the normal curve, leaving the scores as they are above would create difficulties when interpreting the results. To address this issue the aptitude scores were converted into midpoints for the above categories to allow for interpretation of the variables as continuous. Refer to Appendix A for more detail on the creation of these variables, midpoints, and descriptions of the aptitudes examined.

(k) **Data, People, Things Scores**: The Data, People, Things (DPT) scores represent the complexity of job tasks associated with working with data, people, or things for each respondent's intended occupation. The 1991 Dictionary of Occupational Titles (DOT) is used to assign scores for each variable. The DOT scores are used instead of the DPT scores assigned by the NOC because, unlike the NOC, the DOT represents their scores on a scale of complexity. The DPT scores for most of the occupations are identical between the DOT and the NOC; however, the NOC assigns a score of "not significant" to some occupations whereas the DOT typically assigns the lowest level of complexity score for these occupations. It is primarily due to the ease of interpretation of the scores on a scale of complexity that the DOT scores have been used. For a detailed account of the list of job tasks associated with the DPT scores refer to Appendix A.

(l) **Occupational Socio-economic Status Scores**: The occupational socio-economic status (SES) scores represent the SES scores of respondents' intended occupations. This variable is a continuous measure. Calculations of the SES scores are based on the methodology for calculating Blishen (1967) scores. Refer to Appendix A for a more detailed explanation of this calculation.

Statistical Methods and Formulae

The statistical methods and models used in this research address various aspects of immigrant employment success. The first set of results presented utilize logistic regression in an effort to determine whether ascribed, demographic, human capital, and occupational factors affect the likelihood of an immigrant obtaining a job matching his or her intended occupation at any point since immigration. The second set of results that are discussed account for the above factors with respect to their potential effect on the rate at which a job match occurs. This is determined by event history

analysis through the use of Cox proportional hazards (PH) models. The third set of models employ Ordinary Least Squares (OLS) regression to assess the effects of ascribed, demographic, and human capital factors on the prestige scores and wages of immigrants' most recently held jobs in Canada. The following sections explain the methodology of each type of analysis. Due to the fact that the explanation of logistic regression is in part reliant on an understanding of OLS regression, a discussion of OLS regression will be addressed first, despite the fact that it is employed in the latter models in the results chapters. Discussion of the event history model and some issues relevant to longitudinal data are presented following the discussion of logistic regression analysis.

Ordinary Least Squares (OLS) Regression: Models 9-12, 14 and 15

Multiple regression analysis is a statistical method used to estimate the relationship between a continuous dependent variable and predictor variables (Knoke et al, 2002). OLS regression allows one to obtain parameter estimates and conduct significance tests which determine whether or not the relationship between a predictor variable and the dependent variable are reliable estimates at the population level. In addition, standardized regression coefficients (β) provide estimates that can be used to determine the relative importance of the predictors of the dependent variable. OLS regression in particular is a method used to obtain regression coefficients that minimize the error of the sum of squares[6] . The prediction equation for an OLS regression with "*k*" independent variables is as follows (Knoke et al., 2002):

$$\acute{Y}_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots + \beta_k X_{ki}$$

Where α = the intercept.

β_j = the regression coefficient indicating the effect of the independent variable X_j on the predicted score of the dependent variable $\acute{Y}_i$.

Models 11 and 12 also employ a different element of regression analysis. These models measure the change in immigrants' wages and occupational prestige scores between their first job and

[6] The sum of squares is the sum of squared deviations of each score from the "grand mean" of all groups (Knoke et al., 2002:115).

most recent job in Canada. When studying changes in variables over time, the value of a variable at one point in time is considered dependent on its value at the previous point in time (Schroeder et al., 1986). Therefore, the value from the previous point in time can be used as an independent variable to estimate the change over time; this is referred to as a "lagged dependent variable" (Schroeder et al., 1986:54). This method is employed by entering the weekly wages and occupational prestige scores of immigrants' first jobs as independent variables in Models 11 and 12 respectively. Thus, one can determine what factors are significant predictors in estimating the change in immigrants' incomes and prestige scores between their first job and most recent job.

Interpretation of OLS Regression Results

The unstandardized regression coefficients (*b*) measure the increase or decrease in the dependent variable for every one-unit difference in the predictor variable (Knoke et al., 2002). These coefficients can be directly interpreted according to their units, but cannot be compared between variables. The interpretation of results between two continuous variables is straightforward; however, several of the variables represent discrete categories with a reference group. These coefficients can only be interpreted in relation to the reference group. The standardized regression coefficients (β) allow one to compare the relative influence that predictor variables have on the dependent variable. The standardized regression coefficient with the largest absolute value represents the greatest predictor of the dependent variable in the model. The discussion of results for the regression analyses provides an interpretation of both the standardized and unstandardized regression coefficients.

Logistic Regression Analysis: Models 1-4 and 13

Logistic regression is a statistical method for analyzing a dichotomous dependent variable. This method is required as two assumptions of OLS regression are violated by binary dependent variables. The first violation is that, due to the fact that a dichotomous dependent variable can only represent the values of "0" or "1", the error terms are not normally distributed. As a result, estimates resulting from Ordinary Least Squares (OLS) regression will not be the most reliable, possibly leading to incorrect conclusions (Knoke et al., 2002). The second violation that dichotomous dependent variables commit

is creating some "nonsensical" expected values that therefore cannot be interpreted (Knoke et al., 2002:298). The assumptions of logistic regression are thus more suitable to the use of a binary dependent variable.

Logistic regression is different from linear OLS regression because it predicts the likelihood, or probability, of an occurrence. Menard (1995:12) suggests that one may conceptualize logistic regression as attempting to "predict the probability that a case will be classified into one" category or the other of the dependent variable. Similar to linear regression, logistic regression allows for multivariate models and the inclusion of control variables. Logistic regression uses maximum likelihood estimation (MLE), a method which "attempts a series of successive approximations" to the parameter values of the true population (i.e. "α", the population intercept, and "β", the population regression coefficient) (Knoke et al., 2002:307). The MLE method seeks to use the data in the sample to estimate the parameters that maximize the probability of obtaining the observed values in the sample. The MLE method then determines the probability of observing each dependent variable in the sample if "a given set of parameters is assumed to be true" (Knoke et al., 2002:306). The basic equation for a dichotomous logistic regression with "*k*" independent variables is as follows (Menard, 1995:12):

$$\text{logit}(Y) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k$$

where logit(Y) is the natural logarithm (ln) of the odds (Menard, 1995:12):

$$\ln\left(\frac{P(Y=1)}{[1-P(Y=1)]}\right).$$

For the logistic regression models in this research project, P(Y=1) represents the probability of a job match with one's intended occupation.

Interpretation of Logistic Regression Results

In logistic regression, estimation of the relationship between variables is complicated, as this relationship is nonlinear. Interpretation involves thinking in terms of the log-odds of an occurrence. In the context of the logistic regression model that is used in this research, the interpretation of results

determines the likelihood that a type of immigrant, given a set of characteristics, will obtain a job match at some point during his or her first two years in Canada. For example, the logistic regression examining skill type match indicates the likelihood of a visible minority immigrant obtaining a job match compared to the likelihood of a non-visible minority immigrant obtaining a job match.

The logistic regression results are primarily reported as both regression coefficients and odds ratios. However, for ease in interpretation, the odds ratio values are used in the discussion of results. Odds ratios are calculated by exponentiating the regression coefficient (β). These values can also be used to calculate a "quantitative estimate for the relationship" between an independent and dependent variable by subtracting one (i.e. exp(β)-1) from the odds ratio if the coefficient is positive (Knoke et al., 2002:310). Multiplied by one hundred, the result of this calculation produces an easily interpretable percentage which is useful in understanding the relationship.

Event History Analysis

One of the contributions of this study is accounting for different factors which may affect the rate at which immigrants obtain a job match given a set of characteristics. In order to address these factors in relation to their effect on the rate at which a job match occurs, event history analysis is used to analyze these models. Specifically, the Cox proportional hazards (PH) model is employed. Allison (1984:9) describes event history analysis as "a longitudinal record of when events happen to a sample of individuals". The events that are studied in event history analyses are qualitative changes, such as employment in one's intended occupation, that are characterized by a definite distinction between what occurs prior to and following the event. Some variables that are examined in event history analyses may be constant over time (e.g. region of origin) and others may vary over time (e.g. English language proficiency). The statistical models used in event history analyses examine the amount of time that occurs between the qualitative changes for a given variable.

Definitions of Key Concepts in Event History Analysis

Due to the unique concepts employed in event history analysis, it is necessary to outline their meanings and uses. It is important to note that "failure" and "survival" are two of the primary concepts used in

event history analysis. These terms may seem counter-intuitive to the interpretation of this research problem. A "failure" among a respondent in the LSIC data set actually represents the occurrence of a desired event: acquiring a job in his or her intended occupation. Conversely, "survival" of a respondent in the LSIC indicates that an individual has not obtained a job in her or her intended occupation during the observed time period. The following are definitions of key terms that are used throughout the discussion and interpretation of the event history models:

(a) Failure Time: The time at which an individual experiences the defined event. With respect to this study, this refers to the time at which a respondent obtains a job that matches his or her intended occupation.

(b) Risk Set and Time at Risk: The risk set refers to the set of individuals who are "at risk of event occurrence" at a specified time (Allison, 1984:16). Typically all individuals are at risk during the first time frame. For example, in the LSIC sample, all respondents may potentially obtain employment in their intended occupation the first day following their arrival in Canada. If, for example, one hundred respondents obtain employment in their intended occupation at this point in time, those one hundred people will not be considered "at risk" after this time. The concept of "time at risk" refers to the time period in which an individual is "at risk" of experiencing an event.

(c) Survival Function: The survival function represents the probability that an individual will "survive" until a given time. The survival function is therefore equal to "1" at "time zero" and will approach zero as time increases. With respect to this research, this function represents the probability that an immigrant will not have a job match until a specified time.

(d) Hazard Function or Hazard Rate (h(t)): The hazard rate is the rate of failure or event occurrence. For continuous time data, the hazard rate represents the probability that, within a specific interval of time, an event will occur, given that it has not occurred prior to the specified time interval (Allison, 1984). This probability is divided by the width of the time interval. Allison (1984:23) suggests the hazard rate be interpreted as "the unobserved rate at which events occur". Although the hazard rate is unobserved, it "controls both the occurrence and the timing of events" and is thus the "fundamental

dependent variable" in an event history model (Allison, 1984:16). The shape of the hazard rate in this research is determined by the process of obtaining a job in one's intended occupation. For example, if the "risk" of obtaining a job in one's intended occupation increases with time, the hazard function also increases.

(e) Baseline Hazard Function: The baseline hazard is a central concept to the Cox proportional hazards model. Although it is never specified in the Cox model, it can be estimated. The baseline hazard function is the rate of failure dependent on time alone. It is analogous to the intercept in linear regression, as the baseline hazard is the hazard function when a covariate (X_i) or time-varying covariate ($X_i(t)$) is zero. However, the baseline hazard function should not be regarded as the intercept for this type of model.

Issues Specific to Event History Analysis and the Cox Proportional Hazards Model

Event histories that are used to analyze the causes of certain events are often complicated by two major issues that prevent standard statistical approaches such as multiple regression from being used: censored data and time-varying covariates (Allison, 1984). Censored data are cases in which the event may have occurred prior to the period of study, or where the event has yet to happen at the end of the period of study; these cases are referred to as left-censored and right-censored data respectively. Time-varying covariates are another issue that event history analysis handles. These variables are a concern in event history analysis because the values of certain variables can change over time and need to be measured more than once. A normal multiple regression analysis cannot account for changes in these kinds of variables. With respect to this research, right-censored data and time-varying covariates are issues that exist. Left-censored data are not a major concern, as the respondents were interviewed within six months of their arrival in Canada and were asked to report any jobs that they have held since arriving. However, the attrition of respondents between Wave One and Wave Two of the LSIC is a potential concern with respect to right-censored data as there are no data regarding the experiences of these individuals past their first interviews. While this in part has influenced the decision to use only the Wave Two sample, the potential impact of this loss of respondents is acknowledged.

To address the issues of censored data and time-varying covariates, various event history analysis approaches have been developed. One of the common approaches to event history analysis in the social sciences is the proportional hazards model developed by Cox (1972). The Cox proportional hazards (PH) model employs partial likelihood methods to handle censored data, allowing these data to be handled appropriately. Other modeling techniques code censored data as missing or treat them as if the event occurred at the last time interval during the period of study (Hutchison, 1998). The Cox model also allows for time-varying covariates such as age or language proficiency. The Cox PH model is the most useful event history model for this research in that it makes no assumptions about whether the hazard rate increases or decreases over time (Cleves et al., 2004). Because previous literature in this area does not examine the rate at which immigrants obtain job matches, a definite idea of whether the hazard rate of immigrants obtaining job matches increases or decreases over time is unknown. For these reasons, the Cox proportional hazards model is an appropriate model with which to analyze these data.

The proportional assumption in the Cox model presumes that the ratio of the hazard rates of any two individuals is constant at any point in time (Allison, 1984). However, the proportional hazards assumption is not considered to be essential to the Cox model because "the hazards cease to be proportional" when time-varying covariates are entered into the model (Allison 1984:34). Considered a semi-parametric approach, the Cox model is parametric in that it "specifies a regression model with a specific functional form" and is non-parametric in that it leaves the form of the distribution of the times of event occurrence unspecified (Allison, 1984:14). The semi-parametric approach involves the analysis of binary outcomes at each time of event occurrence (Cleves et al., 2004). The binary outcome for my statistical model is whether or not a respondent obtains employment in his or her intended occupation during the observed time period. The time until a job match occurs is measured in days since an immigrant's arrival (i.e. their date of arrival is considered time "0").

The Cox proportional hazards approach is different from other event history analyses because it models the hazard rate, as opposed to the survival function, "as a log-linear function of independent

variables" (Hutchison, 1988:212). The basic equation for the hazard rate of a Cox model with several covariates is

$$h(t) = h_0(t) \exp(\beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_k X_{ik})$$

where $h_0(t)$ is the baseline hazard, $\exp(\beta_1)$ is the estimate of the relative risk of event occurrence and X_{i1} is a covariate with the β_1 coefficient.

Interpretation of the Cox PH Model Estimates

A basic interpretation of the Cox model, based on the above equation is as follows: Assuming that X_{i1} is a continuous variable, for each one unit increase in X_{i1}, the hazard function is multiplied by the estimate for the relative risk of event occurrence ($\exp(\beta_1)$). If the estimate for relative risk (hazard rate) is greater than one, this means that higher values of X_1 are associated with a shorter time until event occurrence. If the estimate for relative risk is less than one, this implies that higher values of X_1 are related to a longer amount of time until the event occurs (Steele, 2007).

Weighting, Missing Data, and Issues of Longitudinal Analysis

The following section provides more detail regarding how the data are weighted for the statistical analyses, including a discussion of the use of bootstrap weights provided by Statistics Canada. How missing data are treated in the analyses is also briefly discussed below. In addition, some attention is given to the seam effect, an issue of concern specific to the analysis of longitudinal data.

Longitudinal Weights

For the descriptive analyses the final longitudinal weights (i.e. population weights) are weighted "down" to the sample size. This is done by first obtaining the sum of all weights. From there, the size of the sample is divided by the sum obtained from the original weights, providing a fraction (i.e. N/sum of weights). The original weight is then multiplied by the fraction obtained. Thus, the weights used in the analyses are proportional to the final weights provided by Statistics Canada which account for the complex sampling design of the LSIC.

Bootstrap weights

Statistics Canada provides bootstrap weights for use with the LSIC. Bootstrap weights are applied to the logistic regression and OLS regression models. "Bootstrapping" is a weighting procedure developed by Efron (1979) which produces estimates through resampling the observed data. A number of resamples are constructed from an independent sample. There are 1,000 bootstrap weights in the LSIC data. Generally, bootstrap weights "replace the unknown population distribution" with the known distribution from the observed data (Chernick, 2008:9). Each of these resampling weights is created by random sampling with replacement. This strategy allows one to test whether the significant relationships that are found remain significant across various random samples selected by the bootstrap weights. Bootstrap weights are particularly useful in obtaining a better measure of the standard error.[7]

Missing Data

List-wise deletion is used to handle the missing data in these analyses. List-wise deletion removes all of the cases with missing values on any of the variables that are included in the model (Knoke et al., 2002). With the exception of the variables measuring immigrants' weekly wages, few variables included in the model contain missing data. Thus, list-wise deletion does not result in the loss of a significant number of cases in these models and likely does not result in biased estimates.

Seam effect

The "seam effect" is common to longitudinal data. Typically, longitudinal surveys collect information about the time period between interviews. The "seam effect" pertains to these data. The term "seam effect" refers to the fact that the number of transitions or changes a respondent experiences between one time period and the next is "far higher" when the respondent's reports for each originate from two separate interviews rather than from one interview (Jackle, 2008:1). Thus, seam effects are typically the result of errors in the reporting and dating of events. Respondents typically under-report changes which are further away from the time of interview, or the "seam" of longitudinal cohort studies. In

[7] The standard error is a measure of the amount of variability that would be present among different coefficients estimated from samples drawn from the sample population. The standard error measures "how sensitive the estimate of the parameter is to changes in a few observations" from a sample (Schroeder et al, 1986:41).

addition, respondents often identify changes and "misdate" their occurrence closer to the seam (Jackle, 2008:32). Because respondents to the LSIC are interviewed at six months after arrival and again two years after arrival, the dates of some reports of their work histories may be close to the "seam". In addition, data regarding any employment that started close to the "seam" is likely to be reported more accurately and completely that employment that began at other points in time.

Statistical Models

The following tables provide the statistical models used for the data analyses. These tables represent the hypothesized relationships with the specific variables examined. The ascribed and demographic variables are entered into the models first, followed by the human capital characteristics. The occupational characteristics are entered into the model last due to an assumption that human capital factors, for the most part, precede the occupational characteristics of immigrants' intended occupations. Since various models are employed for similar dependent variables (i.e. job matches at different levels of occupational classification), one model is presented for each basic dependent variable. Table 5.1 presents Models 1 to 4 (logistic regression models for the likelihood of a job match) and Model 13 (logistic regression model for the likelihood of a unit group job match for the sample of engineers). Table 5.2 presents Models 5 to 8, the event history analysis models. Table 5.3 presents Models 9 and 10 (regression models for occupational prestige scores and weekly wages) and Models 14 and 15 (regression models for prestige scores and weekly wages for the sample of engineers). Lastly, Table 5.4 presents the change models for immigrants' prestige scores and weekly wages (Models 11 and 12).

Table 5.1: Logistic Regression Model for Likelihood of Job Match with Intended Occupation (Models 1-4, 13)

Independent Variables: *Ascribed/Demographic Characteristics*	**Intervening Variables:** *Human Capital Factors*	**Intervening Variables:** *Socio-economic Status*	**Intervening Variables:** *Occupational Characteristics*	**Dependent Variables**
Sex of Respondent Age of Respondent Region of Origin Visible Minority Status Admission Category Lives in major Census Metropolitan Area (CMA)	Level of Education Work Experience in Intended Occupation Prior to Immigrating Language Proficiency (English and French)	SES of Intended Occupation	Occupational Aptitudes Scores of Intended Occupation Data/People/Things Scores of Intended Occupation Total Number of Jobs Held Since Immigrating	Job Match Within First Two Years of Arrival

Table 5.2: Event History Model for Rate at which Job Match Occurs (Models 5-8)

Independent Variables: *Ascribed/Demographic Characteristics*	**Intervening Variables:** *Human Capital Factors*	**Intervening Variables:** *Socio-Economic Status*	**Intervening Variables:** *Occupational Characteristics*	**Dependent Variable**
Sex of Respondent Age of Respondent Region of Origin Visible Minority Status Admission Category Lives in Major Census Metropolitan Area (CMA)	Level of Education Work Experience in Intended Occupation Prior to Immigrating Language Proficiency (English and French)	SES Score of Intended Occupation	Occupational Aptitudes Scores of Intended Occupation Data/People/Things Scores of Intended Occupation Total Number of Jobs Held Since Immigrating	Rate at which Job Match Occurs (Hazard Rate)

Table 5.3: OLS Regression Model for Occupational Prestige Score and Logged Weekly Wage (Models 9-10 and 14-15)

Independent Variables: *Ascribed/ Demographic Characteristics*	**Intervening Variables:** *Human Capital Factors*	**Dependent Variables**
Sex of Respondent Age of Respondent Region of Origin Visible Minority Status Admission Category Major Census Metropolitan Area (CMA)	Level of Education Work Experience in Intended Occupation Prior to Immigrating Language Proficiency Total number of Jobs held Since Immigrating	Occupational Prestige Score **(Models 9 and 14)** Logged Weekly Wage **(Models 10 and 15)**

Table 5.4: OLS Regression Model for Change in Occupational Prestige Score and Logged Weekly Wage (Models 11-12)

Independent Variables: *Prestige or Wage of First Job*	**Independent Variables:** *Ascribed/ Demographic Characteristics*	**Intervening Variables:** *Human Capital Factors*	**Dependent Variables**
Prestige Score of First Job Held in Canada **(Model 11)** Logged Weekly Wage of First Job Held in Canada **(Model 12)**	Sex of Respondent Age of Respondent Region of Origin Visible Minority Status Admission Category Major Census Metropolitan Area (CMA)	Level of Education Work Experience in Intended Occupation Prior to Immigrating Language Proficiency Total number of Jobs held Since Immigrating	Occupational Prestige Score **(Model 11)** Logged Weekly Wage (**Model 12)**

Chapter Six

Results of Descriptive Analyses

The following chapter provides descriptive data on some of the key variables examined in this study. The first section concentrates on key demographic characteristics of both the LSIC Wave Two sample (N=9,322) and the sub-sample that is used for my data analyses (N=2,985). The sub-sample identifies individuals aged twenty-five to sixty-four who stated an intended occupation prior to immigrating and have held at least one job since arriving in Canada. The first section of this chapter provides a comparison between characteristics of interest for these two samples in order to identify how the sub-sample differs from the original sample. Refer to Appendix E to see the descriptive data for all of the predictor variables examined in the analyses.

The second part of this chapter provides descriptive information on respondents' intended occupations, one of the central variables of this study. The data related to the intended occupation variable provide insight into the types of occupations that immigrants seek upon arrival in Canada, as well as the skill levels associated with these occupations. This variable plays a crucial role in the creation of the dependent variables in the logistic regression models and event history models. This section also identifies the five most common intended occupations at the unit group and major group levels of the NOC. In addition, information about the distribution of the skill types and skill levels of respondents' intended occupations are presented in Figures 6.1 and 6.2. A cross-tabulation (Table 6.5) between the skill level of immigrants' intended occupations and their highest level of education obtained outside of Canada is also discussed. This table is included in an effort to determine whether the majority of immigrants in the sample state "realistic" intended occupations for which they are qualified. While individuals may still plan to obtain or complete the credentials required of their intended occupations in Canada, these data give some information on whether or not immigrants in the sample generally arrive in Canada with the proper qualifications for their intended occupations.

Lastly, descriptive data representing the population who meet the first two criteria of the sub-sample (i.e. between the ages of 25 and 64 and have stated an intended occupation) but have not

obtained employment within their first two years in Canada is presented. These data focus on the main characteristics of this group and how they generally differ from those who have found employment (i.e. the sample used in the analyses). Only the main characteristics of interest are compared between these two groups.

Description of the LSIC Sample and the Sub-Sample

The following tables represent comparisons between the original sample of immigrants from the second wave of the LSIC (herein referred to as the "original sample") and the sub-sample of immigrants that are used for the statistical analyses. Table 6.1 contains a comparison of frequencies and percentages between the original sample and sub-sample for the main categorical variables of interest such as sex, visible minority status, immigrant admission category, level of education, and region of birth. Table 6.2 compares data for the continuous age variable from the first and second waves of the LSIC. The means, standard deviations, and medians from both samples are reported in this table.

Table 6.1 indicates that the greatest difference between the original sample and the sub-sample is found in the "Sex" variable. While the original sample has a fairly equal representation of males (49.4%) and females (50.6%), the sex distribution changes greatly in the sub-sample. There are nearly three times more men (73.7%) represented in the sub-sample than women (26.3%). This difference indicates that, although there is an equal representation of men and women in the wider immigrant population (as illustrated in the original sample), there are far more men than women entering Canada who have stated an intended occupation and have held at least one job since immigrating.

The fact that there are far fewer women represented in the sub-sample is likely due to the fact that many immigrant women enter Canada as dependents of their spouses or partners under the "Family Class" admission category (Settlement.org, 2007; Man, 2004). Therefore, many immigrant women do not necessarily have to state an intended occupation in order to gain entry into the country, despite the fact that they may intend to work upon arrival. Man (2005:3) identifies this distinction as an important "structural difference between men and women immigrants" with respect to their

occupational positions in Canada. Part of this difference relates to the fact that women who immigrate as dependents have less access to employment resources (e.g. government-subsidized language classes) than men who arrive as principal applicants under the economic class (i.e. "Skilled Worker," "Provincial Nominee" or "Business Immigrant"). Thus, the small proportion of women represented in the sub-sample indicates that they may be quite different from most other female immigrants with respect to their immigrant status and occupational aspirations in Canada.

A key variable in many studies of immigrant employment success is visible minority status. The representation of visible minorities and non-visible minorities changes only slightly when the sub-sample criteria are applied. Non-visible minorities represent 26.5% of respondents in the sub-sample, while only twenty percent of individuals in the original sample are non-visible minorities. The percentage of visible minorities in the original sample is about eighty percent (79.7%) and drops to 73.5% of the sub-sample. While almost 60% of the non-visible minority cases are lost in the sub-sample, about 70% of individuals who identify as visible minorities are lost in this sample.

Another variable that represents some important differences between the original sample and the sub-sample is the "Immigrant Admission Category" variable. In the original sample, a majority of the respondents (60.2%) immigrated under the "Skilled Worker" category. Slightly more than one quarter (26.8%) of individuals in the original sample immigrated under the "Family Class" category while a small percentage of immigrants did so under the "Business Immigrant" (5.6%) or "Refugees and Other Immigrants" (6.6%) categories in the original sample. Very few respondents in the original sample immigrated as "Provincial Nominees" (.7%).

The proportion of skilled workers in the sub-sample is much larger compared to other admission class categories. Individuals who immigrated under the "Skilled Worker" category represent the vast majority of immigrants in the sub-sample (91%). The percentage of immigrants in the "Family Class" is much smaller in the sub-sample than the original sample, dropping to about five percent of respondents. All other admission categories have smaller percentages in the sub-sample compared to the original sample, with the exception of provincial nominees. The proportion of

TABLE 6.1: Comparison of Categorical Variables for Original Sample and Sub-Sample

CATEGORICAL VARIABLES OF INTEREST	ORIGINAL SAMPLE		SUB-SAMPLE	
	Frequency	***Percentage***	***Frequency***	***Percentage***
Sex				
Female	4,713	50.6	786	26.3
Male	4,609	49.4	2,199	73.7
Total (n)	**9,322**	**100.0**	**2,985**	**100.0**
Visible Minority Status				
No, not a visible minority	1,884	20.2	789	26.5
Yes, a visible minority	7,429	79.7	2,191	73.5
Total (n)	**9,313**	**100.0**	**2,980**	**100.0**
Immigrant Admission Category				
Family Class	2,500	26.8	152	5.1
Provincial Nominee Class	65	.7	35	1.2
Skilled Worker Class	5,611	60.2	2,716	91.0
Business Immigrant Class	526	5.6	54	1.8
Refugee/Other Immigrant Class	619	6.6	28	0.9
Total (n)	**9,322**	**100.0**	**2,983**	**100.0**
Region of Birth				
North America	100	1.1	43	1.4
Europe	1,425	15.3	598	20.1
Asia	5,961	64.0	1,751	58.7
Middle East	357	3.8	76	2.6
Africa	859	9.2	302	10.1
Caribbean and Guyana	292	3.1	101	3.4
South and Central America	273	2.9	95	3.2
Oceania and Australia	48	.5	15	0.5
Total (n)	**9,315**	**100.0**	**2,981**	**100.0**
Level of Education				
High School Completed or Less	2,462	26.4	147	4.9
Some Trade School, College, or University	712	7.6	136	4.6
Trade School, Apprenticeship or College Completed	1,096	11.8	289	9.7
Bachelor's Degree	3,361	36.1	1,502	50.4
Master's, Professional, or Doctoral Degree	1,683	18.1	908	30.4
Total (n)	**9,314**	**100.0**	**2,982**	**100.0**

provincial nominees in the sub-sample (1.2%) is somewhat larger than their representation in the original sample (0.7%). The increase in the percentage of skilled workers in the sub-sample is logical due to the nature of applying under the "Skilled Worker" category. Stating an intended occupation is an important criterion for immigrants applying for admission to Canada under this category. Similar logic applies to the drop in the percentage of individuals in the "Family Class" for the sub-sample. Whether one has stated an intended occupation is not as consequential to their admission to Canada.

The regions from which individuals emigrate are also of interest in many Canadian immigration studies (e.g. Boyd and Thomas 2002; Thompson 2000). Data in Table 6.1 show that the majority of individuals in both the original sample and the sub-sample immigrate to Canada from Asia. However, the proportion of immigrants from Asia is slightly larger in the original sample (64%) than in the sub-sample (58.7%). Individuals from Europe represent the second highest percentage of immigrants in both samples, but represent a greater percentage in the sub-sample (20.1%) than in the original sample (15.3%). Immigrants from Africa represent the third largest percentage of individuals in both samples. The percentage of Africans represented in the sub-sample is slightly higher in the sub-sample (10.1%) than in the original sample (9.2%). Following Africa, the percentages of individuals in the original sample from other regions are relatively small and are in the following order from highest percentage of the sample to the lowest: Middle East (3.8%), Caribbean and Guyana (3.1%), South and Central America (2.9%), North America (1.1%), and Oceania and Australia (.5%). The order changes slightly in the sub-sample as immigrants from the region of the Caribbean and Guyana represent the fourth largest percentage of the sample (3.4%), followed by individuals from the South and Central America (3.2%) and the Middle East (2.6%). Immigrants from North America and Oceania represent the lowest percentages of the sub-sample (1.4% and 0.5% respectively).

The data for the level of education categories indicate the high educational attainment of the immigrant population. Table 6.1 reveals that individuals who have a Bachelor's degree represent the largest percentage of the original sample (36.1%). Eighteen point one percent (18.1%) of immigrants in the original sample hold a Master's, professional, or Doctorate degree and a relatively large percentage

of the original sample represents individuals who have a high school education or less (26.4%). Immigrants who have completed trade school, an apprenticeship, or a community college program (11.8%) outside of Canada and those who have some trade school, apprenticeship, community college, or university education (7.6%) before arrival represent the lowest percentages for level of education in the original sample.

A much higher percentage of immigrants in the sub-sample have a Bachelor's degree (50.4%) or a higher degree (30.4%). This is indicative of the increased emphasis placed on education for skilled workers in Canada's immigration policy. Individuals applying as skilled workers, business immigrants, or provincial nominees are expected to fill jobs in skilled labour or "knowledge economy" occupations. In the skilled worker or professional worker application for immigration to Canada, the education section is worth up to 25 points out of a total of one hundred points (or one quarter of the points) (Citizenship and Immigration Canada, 2008). Individuals with a Master's degree or higher, along with the equivalent years of study required, receive the maximum amount of points for education. Therefore, in combination with other criteria, education is a very important source of points for many immigrants to qualify for admission into Canada.

The sub-sample also reflects this issue by the drop in representation of immigrants with lower levels of education. Only 9.7% of individuals in the sub-sample have completed trade school, an apprenticeship, or a college program, followed by individuals with a high school diploma or lower (4.9%). Immigrants with some education (i.e. have not completed their program) from trade school, college, or university represent the level of education with the lowest proportion of respondents in the sub-sample (4.6%). An important difference between the original sample and the sub-sample is that the percentage of immigrants with a high school diploma or less represents the third highest percentage of individuals in the original sample (14.3%). However, this group represents a much lower percentage of immigrants in this sub-sample.

The age of immigrants is also of interest. The mean age of individuals in the first wave of the original sample is about thirty five years old (34.96), with a standard deviation of 12.03. The median

age of immigrants in Wave One of the original sample is thirty-three years of age. This indicates that there is a very slight positive skew of age in this sample. Respondents' mean age at Wave Two of the original sample is about 37 years of age (36.62). The standard deviation for age at Wave Two (12.01) is similar to that in Wave One. The slight positive skew still exists in Wave Two of the original sample as the median age (35) is lower than the mean age.

TABLE 6.2: Comparison of Continuous Variables for Original Sample and Sub-Sample

CONTINUOUS VARIABLE OF INTEREST	ORIGINAL SAMPLE			SUB-SAMPLE		
	Mean	***S.D.***	***Median***	***Mean***	***S.D.***	***Median***
Age at Wave One	34.96	12.03	33	35.31	6.73	34
Total (n)	**9,322**			**2,985**		
Age at Wave Two	36.62	12.01	35	36.97	6.71	36
Total (n)	**9,322**			**2,985**		

Respondents in the sub-sample are slightly older than those represented in the original sample. The standard deviations in the sub-sample (6.73 for Wave One, 6.71 for Wave Two) are smaller than those in the original sample. This is due to the fact that the age range is narrower in the sub-sample, representing only those individuals between the ages of twenty-five and sixty-four. There is a very slight positive skew for age in both waves of the sub-sample, as the median ages are both less than the mean ages. The mean ages in both waves of the sub-sample are minimally higher in the sub-sample than the original sample. Similarly, the corresponding median ages in both waves of the sub-sample are one year higher than the corresponding median ages in the original sample. These results indicate that the average age of immigrants to Canada represent individuals close to the middle of the "working age range" limitation in the sub-sample.

Description of Respondents' Intended Occupations

The following section provides an overview of immigrants' intended occupations in the sub-sample. The discussion addresses four of the main components of occupation identified in the NOC. The top five stated intended occupations are identified at both the unit group and major group level. The unit group level provides the most specific description of the intended occupations. In addition, the skill types and skill levels of immigrants' intended occupations are represented in Figures 6.1 and 6.2 respectively. A cross-tabulation between the skill level of immigrants' intended occupations and their highest levels of education obtained outside of Canada is also discussed.

Intended Occupations: Unit Group Level

The following table (Table 6.3) identifies the five most frequently stated intended occupations of immigrants in the sub-sample at the unit group level of the NOC. The unit group level represents the most specific level of classification within an occupational domain; there are a total of 520 unit groups in the NOC. Due to the large number of occupations at the unit group level, only the five most cited occupations are discussed here.

As a result of the numerous occupations at the unit group level, the largest percentage of immigrants stating an intended occupation in any one of the unit groups is relatively small. About ten percent of the sample identifies their intended occupation as a computer programmer or interactive media developer. The second and third most stated intended occupations are both in the field of engineering: mechanical engineers (6.7%) and electrical and electronic engineers (6.3%). Six percent of immigrants in the sample intend to work as information systems analysts and consultants, while about 3% seek employment as civil engineers upon arrival in Canada.

The five most frequently stated intended occupations are related to either computer and information technology or the field of engineering. All five of the occupations represent jobs that are in "skilled" or "professional" fields. This is logical as individuals in these fields are more favoured in the immigration process and are therefore more likely to gain admission to Canada than individuals trained in less-skilled occupations. All of the top five intended occupations also rank among the

highest ten percent of the working population in terms of the general learning ability required for the occupation (Human Resources and Skills Development Canada [HRSDC], 2007). In total, the five occupations listed in Table 6.3 represent the intended occupations of about one third of all respondents in the sub-sample (32.3%).

TABLE 6.3: Five Most Frequently Stated Intended Occupations – Unit Group Level

Occupational Title (NOC Unit Groups)	NOC Unit Group Code	Frequency	Percent of Total
Computer Programmers and Interactive Media Developers	2174	296	9.9
Mechanical Engineers	2132	199	6.7
Electrical and Electronic Engineers	2133	189	6.3
Information Systems Analysts and Consultants	2171	179	6.0
Civil Engineers	2131	102	3.4
Total (n=2,985)			**32.3**

Intended Occupations: Major Group Level

The five most frequently stated intended occupations at the major group level of the NOC are represented below (Table 6.4). The NOC identifies twenty-six different major groups. The following table indicates the major group title, the number of individuals who have an intended occupation in the major group, and the percentage of respondents in the sub-sample who intend to work in the major group specified. Over half of the individuals in the sub-sample state an intended occupation that is related to the natural and applied sciences. While most intending to work in this field identify professional occupations (46.4%), many also state technical occupations related to the natural and applied sciences (7.8%). Several other immigrants in the sub-sample intend to work in professional occupations in business and finance (6.9%) or professional occupations in social science, education, government services, or religion (6%). The fifth most cited intended occupations at the major group level are skilled administrative and business occupations (4.4%). The top five major groups identified represent nearly three quarters (71.5%) of the intended occupations stated by individuals in the sub-sample.

TABLE 6.4: Five Most Frequently Stated Intended Occupations – Major Group Level

Major Group Title (NOC)	NOC Major Group Code	Frequency	Percent of Total
Professional Occupations in Natural and Applied Sciences	21	1,385	46.4
Technical Occupations Related to Natural and Applied Sciences	22	234	7.8
Professional Occupations in Business and Finance	11	205	6.9
Professional Occupations in Social Science, Education, Government Services, and Religion	41	180	6.0
Skilled Administrative and Business Occupations	12	131	4.4
Total (n=2,985)			**71.5**

The large number of immigrants who intend to work in professional occupations in the natural and applied sciences is also represented above in Table 6.3. When considering the top five intended occupations at the unit group level, one can see that all five occupations are classified as part of this major group (Major Group 21). In addition, it is clear that skilled and professional occupations are commonly stated as areas in which immigrants intend to work upon arrival in Canada. Of the top five major groups, four are identified as either "professional" or "skilled" occupations. This represents the push in Canadian immigration policy for more workers suited to the "knowledge economy" (Reitz 2001b).

Intended Occupations: Skill Type

The percentages of individuals' intended occupations represented by skill type are illustrated in Figure 6.1 (found at the end of this chapter). In the NOC, the term "skill type" generally refers to the type of work performed by individuals in an occupation. However, the skill types identified in the NOC also reflect the field of study or training that is usually required to gain entry into a particular occupation (HRSDC, 2007). Skill type is represented by the first digit in the unit group code for an occupation. The NOC designates nine different skill types across all occupations. Figure 6.1 illustrates these nine skill types; however, skill types "8" and "9" are collapsed together due to a small number of cases in

each group that, if left separated, could not be disclosed due to Statistics Canada regulations regarding small cell counts. The data represented in Figure 6.1 re-express a point that was raised in the above discussion of the major groups: the majority of respondents (about 54%) state an intended occupation in the skill type category of "Natural and Applied Sciences and Related Occupations". The second highest skill type, "Business, Finance, and Administrative Occupations", represents far fewer individuals (12.7%)

The remainder of the skill types each represents less than seven percent of the sub-sample. Sales and service occupations represent the third most occurring skill type among immigrants' intended occupations (6.9%), followed closely by occupations in social science, education, government service, and religion (6.6%). The skill type "Trades, Transport, and Equipment Operators and Related Occupations" is identified by 6.4% of respondents as the skill type of their intended occupation. Health occupations (4.7%) and management occupations (3.9%) are the next most common skill types for immigrants' intended occupations in the sub-sample. Occupations in art, culture, recreation, and sport (3.7%) and occupations that are unique to primary industry and occupations that are unique to processing, manufacturing, and utilities represent the least common skill types of immigrants' intended occupations in the sub-sample.

The representation of these different skill types indicates that most immigrants are trained and educated in the types of work related to the natural and applied sciences, business and finance, and, to a much lesser extent, occupations in social science, education, government service, and religion. Very few immigrants intend to work in occupations that are associated with primary industry and manufacturing. These findings are again in accordance with the concentration on "knowledge" workers in Canadian immigration policy.

Intended Occupation: Skill Level

The skill levels of respondents' intended occupations are illustrated in Figure 6.2 at the end of this chapter. Four skill levels are represented, as well as the percentage of occupations that are managerial positions. Managerial occupations are not associated with any particular skill level within the NOC due

to the fact that employment in these positions is often contingent on factors other than formal education and training (e.g. ownership of property and capital, decision-making skills, organizational abilities) (HRSDC, 2007). Managerial occupations are therefore treated as a separate entity. The four skill levels that are identified correspond to the type and/or amount of education or training that one has to complete in order to work in a particular occupation.

The skill level that requires a university degree is by far the most common among immigrants' intended occupations. In total, 64.6% of respondents' intended occupations represent this skill level. Slightly more than one quarter (26.2%) of the occupations immigrants intended to seek upon arrival in Canada require a community college diploma or an apprenticeship. Only 5.1% of respondents' intended occupations are associated with the skill level requiring secondary school education or up to two years of training. The least common skill level for intended occupations is that which requires no formal education (0.4% of the sub-sample). Almost four percent of intended occupations stated by respondents represent managerial occupations.

It is evident that the vast majority of immigrants in the sub-sample intend to obtain employment in occupations representing the highest skill level. Occupations requiring a university degree are the most common in the sub-sample indicating that there is likely higher competition for these occupations, particularly among immigrants. However, many intended occupations stated by respondents require a community college diploma or lengthy apprenticeship. This skill level is often associated with the trades, but also includes occupations with public health and safety responsibilities, such as firefighters, police officers and registered nursing assistants (HRSDC, 2007). A full 90.8% of individuals in the sub-sample intend to obtain occupations that require a university degree or a community college diploma and/or a two to five year apprenticeship.

With this large percentage of individuals who intend to work in occupations requiring credentials such as a university degree or college diploma, one may ask if these individuals arrive in Canada with such credentials in hand. Table 6.5 below provides a summary table based on a cross-tabulation between the skill level of immigrants' intended occupations and their highest level of

education obtained outside of Canada. The data indicate that the vast majority (93%) of immigrants who intend to work in occupations that require a university degree have obtained a degree prior to arriving in Canada.

Table 6.5: Summary Table for Cross-tabulation of Skill Level of Intended Occupation by Highest Level of Education Obtained Outside of Canada

	Skill Level of Intended Occupation			
Has Appropriate Credential	**University Degree**		**Community College/ Trade School Diploma**	
	Frequency	***Percentage***	***Frequency***	***Percentage***
Yes	1,788	93.0	675	86.8
No	135	7.0	103	13.2
Total	**1,923**	**100.0**	**778**	**100.0**

Fewer immigrants who seek employment in occupations that require a college or trade school diploma have the appropriate credential prior to arriving in Canada (86.8%); however, one must also account for the fact that some occupations included in this skill level may require an apprenticeship. Therefore, some immigrants may expect to gain this experience after they arrive in Canada. In addition, one must also consider the fact that some immigrants who do not hold the appropriate credentials when they arrive may have some education in a university or college/trade school program. Thus, some of these individuals may plan to complete this education after immigrating. In general, the majority of immigrants in Canada do state "realistic" occupations on their immigration applications with respect to their training and education outside of Canada. However, as this study investigates, these qualifications may not help immigrants in obtaining their intended occupations in Canada.

Immigrants Who Have Not Obtained Employment in Canada: Descriptive Data

The following discussion provides descriptive data about immigrants who are between the ages of 25 and 64 and have stated an intended occupation but did not obtain employment within their first two years in Canada. These individuals are excluded from the sub-sample that will be used in the statistical

analyses in an effort to capture only those who are engaged in the labour force. Immigrants who have not obtained a job within their first two years in Canada may be pursuing additional education or may be engaged in other activities in preparation for obtaining their intended occupations (e.g. technical exams, language training). The following data provide some information on this group of individuals in order to identify whether or not there are any key differences between this group and the sub-sample used in the subsequent analyses. Due to the fact that the sub-sample of immigrants who have not yet obtained employment is relatively small (N of valid cases is 459), several variables are not included due to their small numbers when broken into different categories (e.g. regions of origin). Therefore, only a few variables of interest are discussed.

Descriptive data on the sex, visible minority status, skilled worker, and levels of education variables are presented below (Table 6.6). Of note, there is an interesting difference between the unemployed and employed sub-sample regarding the sex distribution. A larger proportion of women are represented in the unemployed sub-sample (38.4%) than in the employed sub-sample (26.3%). This indicates that there are a greater proportion of female immigrants than male immigrants who are between the ages of 25 and 64 and who stated an intended occupation but did not obtain employment within their first two years in Canada. There is also a notable difference in the proportion of skilled workers in each sub-sample. While a large majority of immigrants in the employed sub-sample are skilled workers (91%), far fewer are represented in the unemployed sub-sample (71%).Therefore, a greater proportion of skilled workers are able to find employment in their first two years in Canada than individuals who immigrate under other admission classes. The remaining categorical variables are fairly similar between the two samples. With respect to the levels of education variables, there are greater proportions of individuals with a high school diploma or lower and some trade school, college, or university represented in the unemployed sample (4.9% and 4.6% respectively). However, a smaller proportion of the unemployed sample represents immigrants with a Master's degree or higher. This indicates that the unemployed sample contains a larger proportion of immigrants with lower levels of

education than the employed sample; however, both sub-samples have a similar percentage of individuals with a Bachelor's degree (about 50%).

Table 6.6: Categorical Variables of Interest for Unemployed Sample

CATEGORICAL VARIABLES OF INTEREST	UNEMPLOYED SAMPLE	
	Frequency	***Percentage***
Sex		
Female	176	38.4
Male	283	61.6
Total (n)	**459**	**100.0**
Visible Minority Status		
No, not a visible minority	111	24.3
Yes, a visible minority	347	75.7
Total (n)	**458**	**100.0**
Skilled Worker*		
Yes	326	71.0
No	133	29.0
Total	**459**	**100.0**
Level of Education		
High School Completed or Less	39	8.5
Some Trade School, College, or University	25	5.4
Trade School, Apprenticeship or College Completed	43	9.4
Bachelor's Degree	231	50.3
Master's, Professional, or Doctoral Degree	121	26.4
Total (n)	**459**	**100.0**

***** Due to small counts in Immigrant Admission Class categories, only the "Skilled Worker" class is included in this table due to Statistics Canada confidentiality regulations.

Descriptive data on the age of immigrants in the unemployed sub-sample at both Wave One and Wave Two are presented below (Table 6.7). The data show that the mean age of immigrants in this sample is about 37 years old in Wave One and almost 39 years old (38.58) in Wave Two. The median ages for both waves are slightly lower than the mean values, indicating that the age distribution in the unemployed sample has a slight positive skew. That is, there are some extreme high ages that are pulling the mean "up". The average age of immigrants in both waves is higher than the average age of

immigrants in the employed sub-sample, indicating that those immigrants who are unemployed tend to be older on average than those who find employment within their first two years in Canada.

Table 6.7: Age at Wave One and Wave Two for Unemployed Sample

CONTINUOUS VARIABLE OF INTEREST	UNEMPLOYED SAMPLE		
	Mean	***S.D.***	***Median***
Age at Wave One	36.93	7.84	35
Total (n)	**n = 459**		
Age at Wave Two	38.58	7.84	37
Total (n)	**n = 459**		

Summary

The data discussed in this chapter indicate that there are some important differences between the original sample and the sub-sample, the largest of which is within the sex distribution of the two samples. While females are equally represented in the original sample, selecting out those between the ages of twenty-five to sixty-four, those who have stated an intended occupation, and those who have been employed since arriving in Canada results in a sub-sample where only slightly more than one quarter of the cases are women. Also, there are a greater proportion of highly educated individuals in the sub-sample. Most immigrants in the sub-sample (80.8%) hold a Bachelor's degree or higher while immigrants with this level of education represent slightly more than half of the original sample. The data also illustrate that individuals in the sub-sample largely immigrate under the skilled worker category.

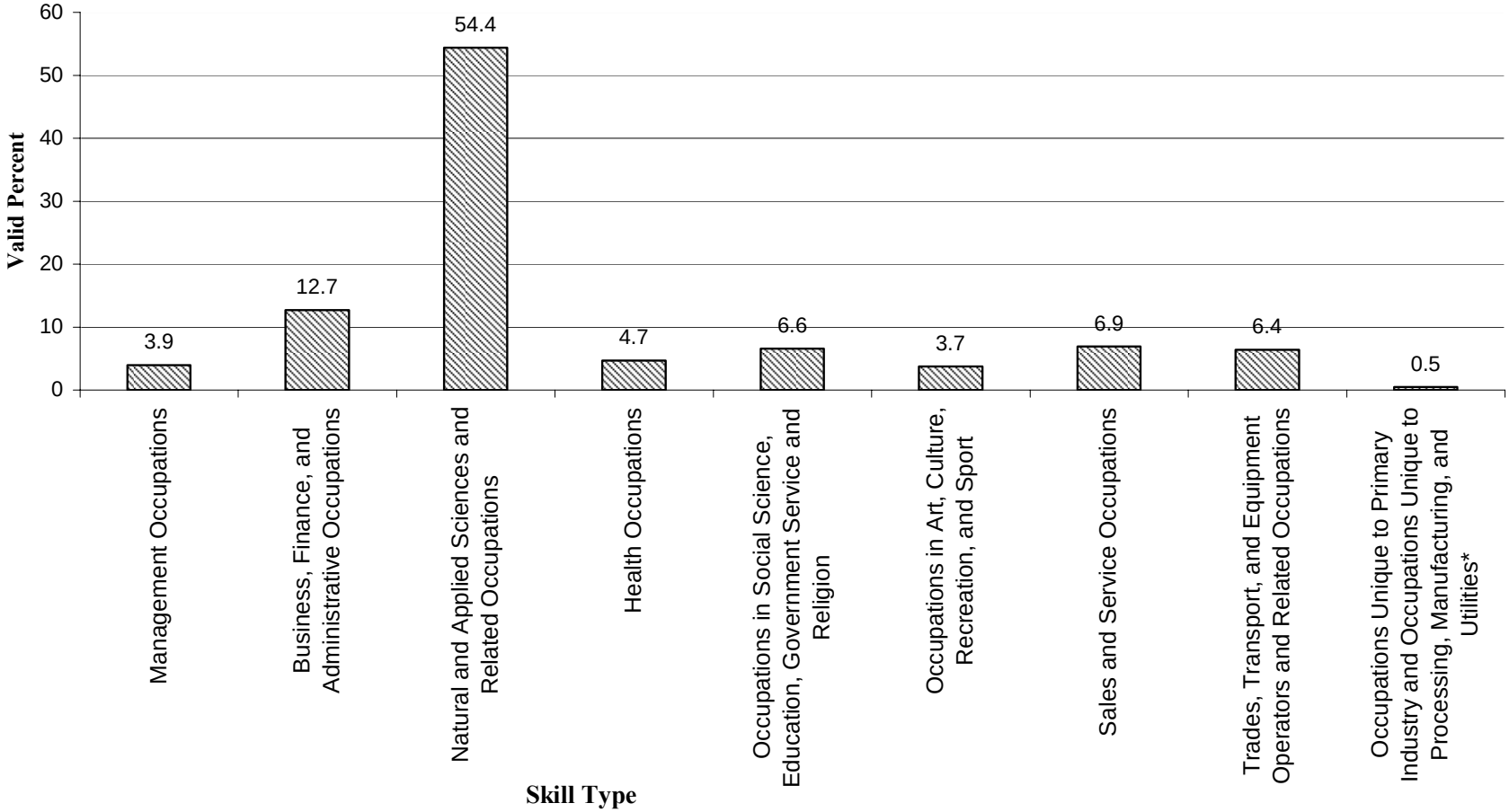
There are only slight differences between the original sample and the sub-sample for visible minority status, region of origin, and age. While the percentage of non-visible minorities is slightly larger in the sub-sample than the original sample, the majority of immigrants in both samples are

visible minorities. Similarly, the majority of individuals in both samples emigrate from Asia while Europeans also represent a noteworthy percentage of both samples.

The majority of respondents in the sub-sample intend to work in occupations in the field of natural and applied sciences. Figure 6.1 (distribution of skill types) reinforces this finding and also indicates that very few immigrants in the sub-sample intend to work in occupations in primary industry or occupations in processing, manufacturing, and utilities. This supports the previous statement that most immigrants are entering Canada with the intention of obtaining professional occupations. In addition, the vast majority of immigrants intend to work in occupations for which they already possess the required educational and training credentials.

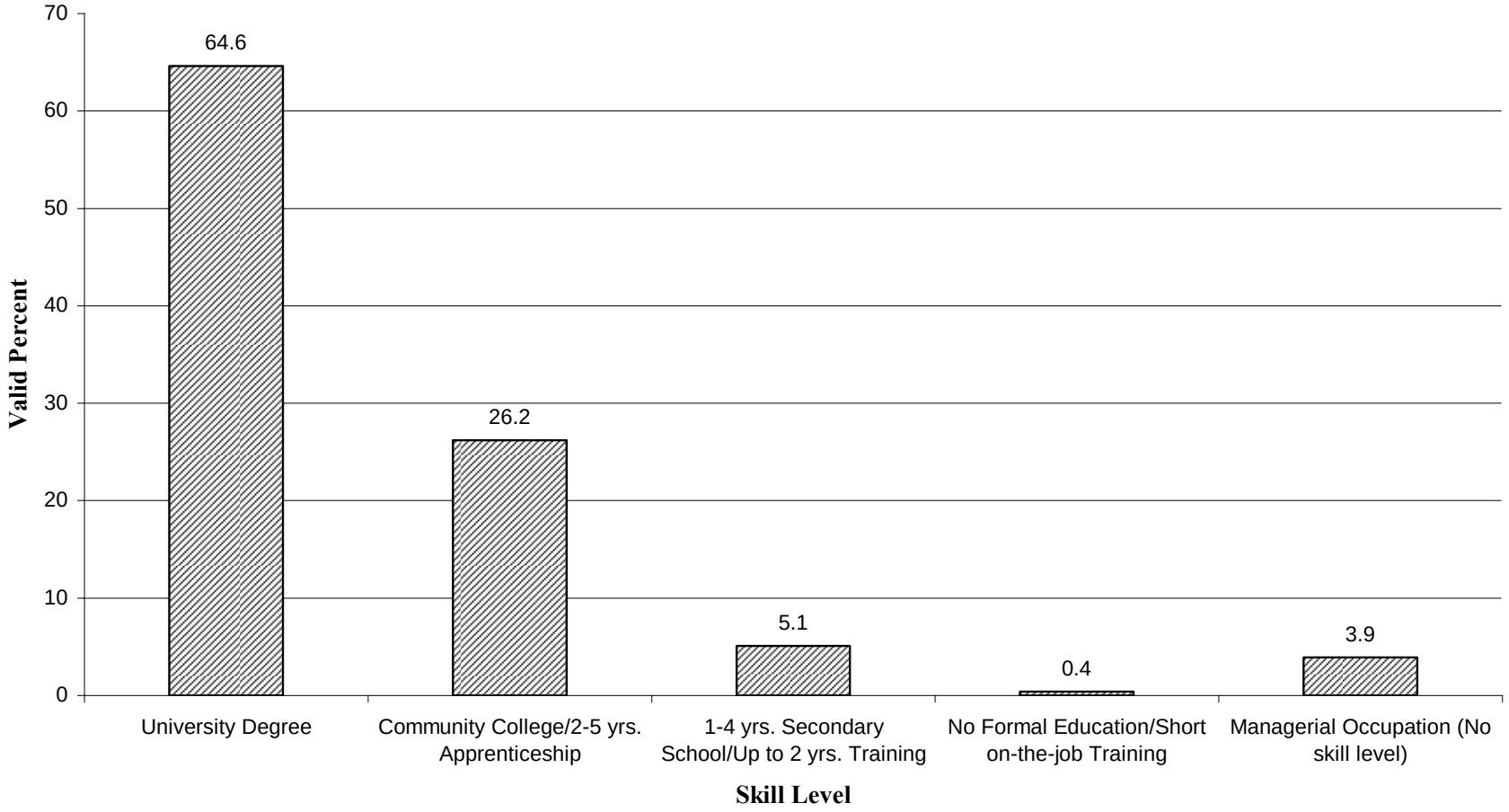
Immigrants who have not yet obtained employment in Canada are found to differ from those in the employed sub-sample of immigrants who have obtained employment in a few ways. Of note, there are a greater proportion of female immigrants in the unemployed sub-sample as well as a greater proportion of individuals with lower levels of education. In addition, the data in these tables show that there a smaller proportion of immigrants who arrive the "Skilled Worker" category who are unemployed. Generally, this chapter indicates that immigrants to Canada who meet the sub-sample criteria tend to be highly skilled and educated individuals. Correspondingly, the majority intend to work in professional or highly-skilled technical occupations, primarily in the field of the natural and applied sciences.

Figure 6.1: Skill Type of Intended Occupation



* Skill Types "8" and "9" collapsed together in accordance with Statistics Canada confidentiality regulations

Figure 6.2: Skill Level of Intended Occupation



Chapter Seven

Results of Logistic Regression Models

The following data represent the results of four separate logistic regression analyses. These analyses examine whether ascribed and demographic factors, human capital indicators, and occupational characteristics of an immigrant's intended occupation affect the likelihood that he or she will obtain a job in Canada that matches his or her intended occupation. Each set of factors are entered successively into each model beginning with the ascribed and demographic factors (Model a), followed by the human capital factors (Model b), socio-economic status of intended occupations (Model c), and the occupational characteristics of intended occupations (Model d). Each regression represents a different level of occupational job match. The dependent variables represent a match between an immigrant's intended occupation and any job he or she has held since immigrating. It is possible for a respondent to report up to nine jobs across two waves of the Longitudinal Survey of Immigrants to Canada (LSIC).

The first logistic regression model determines the likelihood of an immigrant obtaining a job matching his or her intended occupation at the unit group (four-digit) level of the 2001 National Occupational Classification (NOC). The unit group level provides information regarding the most specific level of occupational classification (e.g. "2131"= Civil Engineer). The second model tests the likelihood that a respondent will obtain a job match at the major group (two-digit) level of the NOC, a more general classification than the unit group level (e.g. "21"= Professional Occupations in Natural and Applied Sciences). The third and fourth logistic regression models determine the likelihood of obtaining a job match for two different aspects of skill – skill type and skill level respectively. Refer to Appendix C for a complete list of NOC skill types and Appendix D for a list of NOC skill levels.

This chapter begins with a brief descriptive analysis of the four dependent variables. This analysis identifies the percentage of respondents who obtained a job match at each of the four classification levels described above. Following the descriptive data, results of the four logistic regression models are discussed in reference to the sets of determinants tested. Each set of factors are

discussed in turn with reference to how the added variables impact the previously entered variables[8]. The chapter concludes with a brief summary of the models and how they contribute to the understanding of immigrant employment success in Canada. Detailed discussion and analysis of the results will be provided in Chapter Eleven ("Discussion of Findings").

Descriptive Data for Dependent Variables

Data representing the sample sizes as well as an overview of the number of immigrants who have obtained a job match at each level of occupational classification are discussed in this section. In addition, the success rates of obtaining employment in the five most frequently stated intended occupations are addressed. An examination of the five most frequently held jobs by those who did not obtain a job match also provides an idea of the activities of this group of immigrants within the labour market.

With respect to the data examined for these models, there is some variation between the sample sizes for different occupational classifications. While the sample sizes of for the unit group, major group, and skill type models are the same (N=2,985), the sample used to examine skill level match is somewhat smaller than the others (N=2,784). Because the NOC does not specify a skill level for managerial positions, individuals intending to work in these occupations are excluded from the analysis. The number of missing cases is small across all of the models.

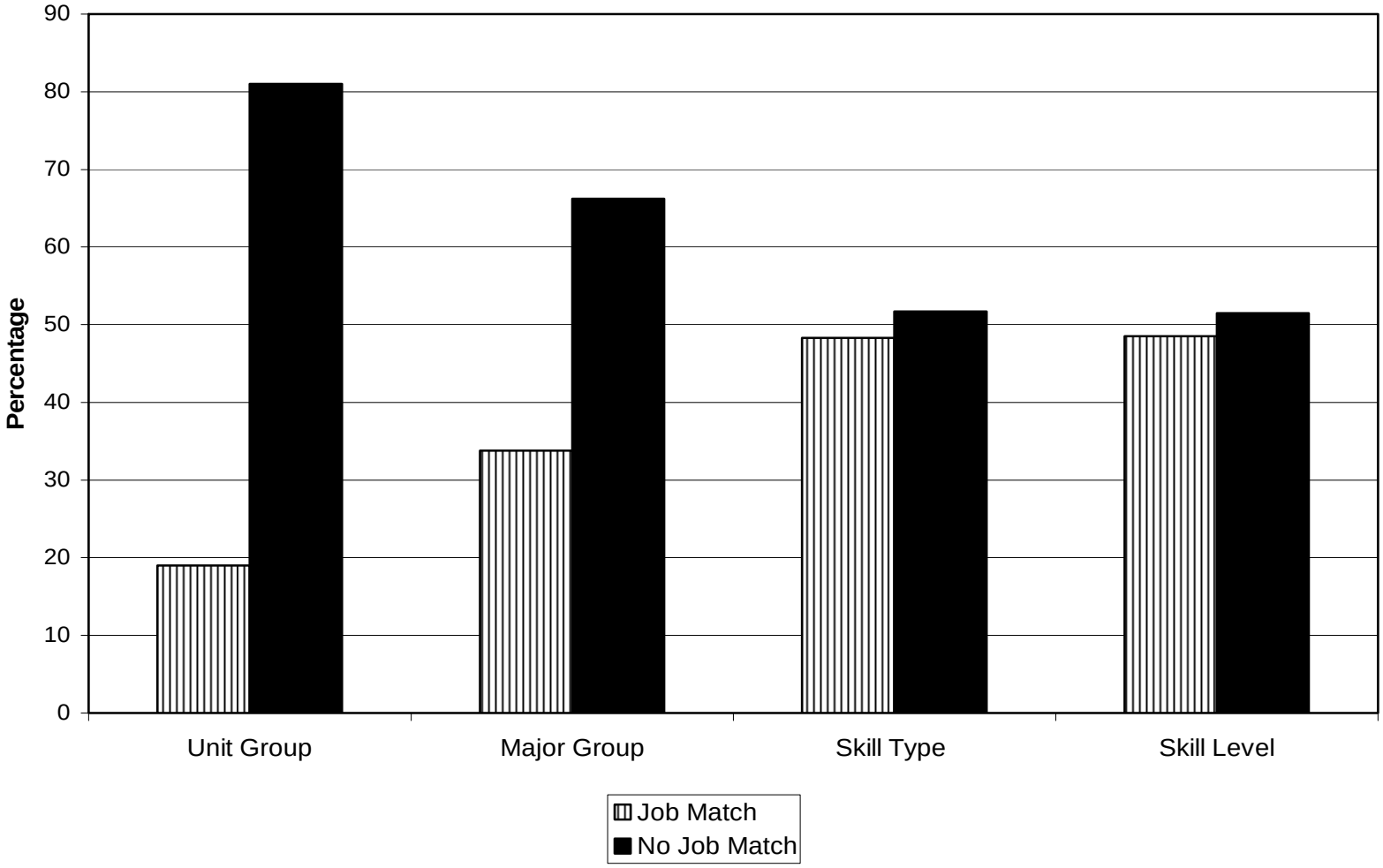
Few immigrants are found to obtain a job match at the unit group level during their first two years in Canada (Table 7.1). The results are also represented graphically for easier interpretation in Figure 7.1. The data indicate that the narrower the level of occupational classification, the lower the percent of immigrants with a job match. Only 19% of immigrants (565 respondents) found a job matching their intended occupation at this level. At the broader major group level, the number of individuals who obtained a job match is almost double the number who found a match at the unit group

[8] In accordance with sociological practice, only the statistically significant variables will be discussed in depth. This approach is addressed by Blalock (1964) who notes that tests of statistical significance allow one to make inferences about the effects of the independent variables. Blalock (1985) also notes that the signs of coefficients for significant variables are typically compared to the hypothesized relationships.

Table 7.1: Frequencies and Percentages for Job Match Variables

	Unit Group Level		Major Group Level		Skill Type		Skill Level	
	Frequency	**Valid Percent**	**Frequency**	**Valid Percent**	**Frequency**	**Valid Percent**	**Frequency**	**Valid Percent**
Job Match	565	19.0	1,006	33.8	1,436	48.3	1,345	48.5
No Job Match	2,411	81.0	1,970	66.2	1,540	51.7	1,430	51.5
TOTAL (Valid Cases)	2,976	100.0	2,976	100.0	2,976	100.0	2,775	100.0

Figure 7.1: Job Match Outcome by Occupational Classification



level. About 34% of immigrants were able to find a job in the same major group as their intended occupations. However, over half of the respondents (66%) still did not obtain a job match at this level. Looking at the even broader categorizations of nine skill types and four skill levels, it is evident that more job matches occur. Close to half of immigrants in the sample (48.3%) were able to obtain a skill type job match. Despite the exclusion of immigrants seeking managerial occupations, the results for skill level match are similar to those for skill type match. About 48% of respondents were able to find jobs that match the skill level of their intended occupations.

It is also apparent that the statistics reported for immigrants' success in finding job matches can vary greatly depending on the classification of occupations that is used. As one refines the coding for levels of occupational differentiation, the amount of job matches lessen. The data representing the most specific level of a job match (unit group) indicate that very few immigrants obtain a job that is an exact match for their intended occupation. However, as the results for skill type and skill level match indicate, a much higher degree of success may be reported for immigrants obtaining employment in their respective fields when the classification of occupations is more broadly measured. While an immigrant may be working in the same industry as his or her intended occupation (represented by skill type), he or she may have a very different occupation in Canada when looking at his or her job at the unit group level.

Examining the Most Frequently Held Jobs Among Immigrants with Matches and Non-Matches

Information on immigrants' success rates of obtaining job matches in the five most frequently stated intended occupations (as discussed in Chapter Six) can be found below (Table 7.2). Regardless of the level of occupational classification used to determine whether or not an immigrant has obtained a job match, there are a large number who did not obtain any type of job match within their first two years in Canada. Occupational data regarding the type of employment these "non-matches" are receiving at the unit group level of the NOC is also presented below (Table 7.3). Again, due to the fact that there is great variation in the types of jobs these immigrants obtain in Canada, only the five most frequently held occupations are reported.

Of the five most frequently stated intended occupations, immigrants who intend to work as information systems analysts or consultants have the highest success rate with about 41% obtaining a job match within their first two years in Canada. Immigrants who intend to work in Canada as computer programmers or interactive media developers have the second highest success rate of these occupations; however, only about one in five of the individuals who state this as their intended occupation obtained a job match. The remaining intended occupations, all in engineering, have similar success rates which hover around 10%. Almost 12% of immigrants who intend to work as mechanical engineers obtained a job match while about 11% of those who intend to work as electrical or electronic engineers found employment in their field. Of these occupations, those who intend to work as civil engineers had the least success in obtaining a job match with only about 10% finding employment in this occupation.

Table 7.2: Frequencies of Job Matches in the Five Most Frequently Stated Intended Occupations

Occupational Title	Number Who Stated as Intended Occupation	Number Who Obtained this Occupation	Job Match Success Rate
Computer Programmers and Interactive Media Developers	296	73	24.7%
Mechanical Engineers	199	23	11.6%
Electrical and Electronic Engineers	189	20	10.6%
Information Systems Analysts and Consultants	179	74	41.3%
Civil Engineers	102	10	9.8%

The five most frequently held jobs among immigrants who have not yet received a job match are quite varied (Table 7.3). In addition, only one of these occupations is represented in the five most frequently stated intended occupations listed in Table 7.1. Interestingly, of these occupations, the one with the highest success rate of a job match is also the most frequently held occupation among those immigrants without a job match. About 4% of immigrants who have been unable to find employment in their intended occupation work as information systems analysts and consultants within their first two

years in Canada. This suggests that, in general, immigrants have a fair amount of success obtaining employment in this occupation regardless of whether or not it is stated as their intended occupation.

The remaining occupations listed are quite different from the five most frequently stated intended occupations. The second and fifth most frequently held occupations are sales and service occupations which require a low skill level. Four percent of immigrants who have been unable to obtain a job match in Canada work as retail salespersons or sales clerks while about two percent work as food counter attendants, kitchen helpers, or related occupations. The third most frequently held occupations for "non-match" immigrants are post-secondary teaching or research assistants. Due to the fact that most (if not all) individuals who work as post-secondary teaching or research assistants are students, usually in graduate-level programs, this may be an indication that many immigrants without a job match are enrolled in post-secondary graduate programs in an attempt to strengthen or upgrade their credentials. About three percent of the "non-match" group works in this field. Lastly, an additional 2.7% of the sample of immigrants without job matches work as electronic service technicians. These five occupations represent about fifteen and a half percent of immigrants who have not obtained a job match within their first two years in Canada. These data indicate that there is a great variety in the type of jobs these individuals obtain in Canada, although they typically require much lower skill levels than the five most frequently stated intended occupations.

Table 7.3: Five Most Frequently Held Occupations Among Immigrants with No Job Match

Occupational Title	NOC Code	Frequency	Percent of Non-Match Sample (n=2,411)
Information Systems Analysts and Consultants	2171	99	4.1
Retail Salespersons and Sales Clerks	6421	97	4.0
Post-Secondary Teaching and Research Assistants	4122	64	2.7
Electronic Service Technicians (Household and Business Equipment)	2242	64	2.7
Food Counter Attendants, Kitchen Helpers, and Related Occupations	6641	51	2.1
Total		**375**	**15.6**

Model 1: Logistic Regression for Unit Group Job Match

The following sections discuss the results of the influence that various factors have on the likelihood of obtaining a unit group job match. Each section is divided according to the group of variables entered at each point in the model. Model 1a discusses the effects of ascribed and demographic factors, followed by an examination of the effects of human capital factors (Model 1b), the socio-economic status scores of immigrants' intended occupations (Model 1c), and other occupational characteristics of immigrants' intended occupations (Model 1d). Results from these models can be found in Table 7.4.

Model 1a: Effects of Ascribed and Demographic Factors on Likelihood of a Unit Group Match

Several ascribed and demographic factors are found to have a significant effect on the likelihood that an immigrant will obtain a unit group job match. Age, visible minority status, and whether or not an immigrant lives in one of the major Census Metropolitan Areas (i.e. Toronto, Montreal, or Vancouver) are all statistically significant predictors of a job match. However, the data suggest that there is no significant difference between immigrant women and men in the likelihood of obtaining a unit group job match.

Supporting the hypothesis regarding the effect of age, the data show that older immigrants are less likely to obtain job matches than younger immigrants (OR[9]=0.98, $p<0.001$). While the negative effect of age is relatively small in magnitude, the effect of visible minority status is fairly large. Confirming my initial hypothesis, the data indicate that a visible minority immigrant is less likely to obtain a job match at the unit group level than a non-visible minority immigrant when other ascribed and demographic characteristics are controlled (OR=0.60, $p<0.05$).

The Census Metropolitan Area (CMA) variable also has a fairly large effect and indicates that immigrants living in one of the major CMAs are less likely to obtain a unit group job match than those living in other areas (OR=0.65, $p<0.001$). This result counters the hypothesis regarding the anticipated effect of living in a major CMA. Considering that many individuals immigrate to the larger cities with the belief that they will have a greater amount of employment opportunities, this finding is relatively

[9] OR = Odds Ratio

TABLE 7.4: MODEL 1 – Logistic Regression on Overall Job Match (Unit Group)

	Model 1a			Model 1b			Model 1c			Model 1d		
	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Intercept	0.730	0.488	2.07	-1.901***	0.562	0.15	-1.50**	0.792	0.22	-2.755***	0.742	0.06
Sex	-0.023	0.112	0.97	0.069	0.121	1.07	0.114	0.124	1.12	0.115	0.134	1.12
Age at Immigration	-0.023**	0.008	0.98	-0.022**	0.008	0.98	-0.021*	0.009	0.98	-0.017	0.009	0.98
Visible Minority Status	-0.520*	0.217	0.60	-0.504*	0.215	0.60	-0.545*	0.216	0.58	-0.525**	0.217	0.59
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.436***	0.105	0.65	-0.360**	0.113	0.70	-0.384***	0.114	0.68	-0.409***	0.117	0.66
Region of Origin (North America=Reference Category)												
Africa	-0.612	0.384	0.54	-0.665	0.387	0.51	-0.673	0.391	0.51	-0.653	0.379	0.52
Asia	-0.666	0.393	0.51	-0.415	0.380	0.66	-0.462	0.384	0.63	-0.438	0.373	0.64
Caribbean or Guyana	-0.780	0.485	0.46	-0.959	0.491	0.38	-1.057*	0.499	0.35	-1.010*	0.496	0.36
Europe	-0.792*	0.355	0.45	-0.563	0.352	0.57	-0.638	0.359	0.53	-0.575	0.349	0.56
Middle East	-0.723	0.514	0.49	-0.580	0.517	0.56	-0.657	0.522	0.52	-0.694	0.518	0.50
Oceania	-0.797	0.685	0.45	-0.983	0.637	0.37	-1.080	0.640	0.34	-1.204	0.623	0.30
South or Central America	-0.279	0.419	0.76	0.169	0.420	1.18	0.158	0.421	1.17	0.156	0.412	1.17
Admission Class (Skilled Worker=Reference Category)												
Business	0.577	0.305	1.78	0.735*	0.369	2.09	0.527	0.371	1.69	0.536	0.392	1.71
Family	-0.121	0.232	0.89	-0.233	0.250	0.79	-0.361	0.263	0.70	-0.289	0.262	0.75
Provincial Nominee	0.742	0.399	2.10	0.568	0.438	1.77	0.428	0.436	1.55	0.594	0.445	1.81
Refugee or Other	-1.763*	0.845	0.17	-1.373	0.921	0.25	-1.524	0.924	0.22	-1.466	0.942	0.23
Level of Education (Bachelor's Degree= Reference Category)												
High School or Lower	—	—	—	0.815**	0.280	2.26	0.474	0.310	1.61	0.541	0.315	1.72
Some Trade School, College, or University	—	—	—	-0.109	0.229	0.90	-0.306	0.232	0.74	-0.270	0.240	0.76
Trade School or College Complete	—	—	—	0.347	0.180	1.42	0.112	0.194	1.12	0.136	0.202	1.15
Master's Degree or Higher	—	—	—	0.110	0.119	1.12	0.176	0.120	1.19	0.147	0.122	1.16

TABLE 7.4 Continued

	Model 1a			Model 1b			Model 1c			Model 1d		
	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Language Proficiency												
English	—	—	—	0.018***	0.003	1.02	0.017***	0.003	1.02	0.018***	0.003	1.02
French	—	—	—	0.011***	0.002	1.01	0.010***	0.002	1.01	0.010***	0.002	1.01
Previous Experience	—	—	—	1.367***	0.106	3.92	1.410***	0.107	4.10	1.396***	0.111	4.03
SES of Intended Occupation	—	—	—	—	—	—	-0.166***	0.045	0.85	-0.311***	0.080	0.73
Aptitudes for Intended Occupation												
Verbal Ability	—	—	—	—	—	—	—	—	—	0.006	0.006	1.01
Numerical Ability	—	—	—	—	—	—	—	—	—	0.007	0.004	1.01
Spatial Perception	—	—	—	—	—	—	—	—	—	0.003	0.004	1.00
Form Perception	—	—	—	—	—	—	—	—	—	0.007	0.004	1.01
Clerical Perception	—	—	—	—	—	—	—	—	—	0.005*	0.002	1.01
Motor Co-ordination	—	—	—	—	—	—	—	—	—	0.004	0.008	1.00
Finger Dexterity	—	—	—	—	—	—	—	—	—	-0.004	0.007	0.996
Manual Dexterity	—	—	—	—	—	—	—	—	—	0.001	0.009	1.00
D.P.T. Scores for Intended Occupation												
Data/Information	—	—	—	—	—	—	—	—	—	-0.092	0.072	0.91
People	—	—	—	—	—	—	—	—	—	0.655	0.406	1.92
Things	—	—	—	—	—	—	—	—	—	-0.032	0.029	0.97
Number of Jobs Held Since Immigrating	—	—	—	—	—	—	—	—	—	-0.084	0.053	0.92

Notes:
Dependent Variable: Overall Unit Group Job Match: 1= Obtained a Job Matching Intended Occupation, 0= Did Not Obtain a Job Matching Intended Occupation
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and have held at least one job since immigrating
β = Logistic Regression Coefficient; SE = Standard Error; OR = Odds Ratio
Sample Size: N=2,985; Model 1a: n=2,969 ; Model 1b: n=2,930 ; Model 1c: n=2,930; Model 1d: n=2,930
All coefficients and standard errors were estimated based on bootstrap weight = 945
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001

unexpected. The data suggest that the employment opportunities available in the major CMAs are not in the occupational fields in which immigrants intend to be employed upon immigrating to Canada. The results for the major CMA variable may also be an indication that immigrants who move to other areas already have beneficial employment connections there, possibly in the form of pre-arranged employment[10]. Further elaboration on this result can be found in Chapter Eleven.

With respect to an immigrant's region of origin, there is a statistically significant relationship between the "Europe" variable and the likelihood of a unit group job match in Model 1a. When controlling for other demographic and ascribed factors, European immigrants are predicted to be less likely to obtain a job match than immigrants from North America (OR=0.45, $p<0.05$). No other regions of origin are statistically significant predictors of the likelihood of obtaining a unit group match in Model 1a, indicating that there are no significant differences between individuals from North America and other regions of origin in terms of the likelihood of obtaining a unit group job match.

An examination of the immigrant admission class variables indicates that only the "Refugee or Other" category has a statistically significant relationship with the likelihood of obtaining a unit group job match. Immigrants arriving under this admission class are less likely to obtain a job match during their first two years in Canada than those who immigrated under the "Skilled Worker" category (OR=0.17, $p<0.05$). This provides some support to the hypothesis which assumes that immigrants in the "Skilled Worker" category will experience greater employment success than those in other admission class categories.

[10] In an effort to gain some insight into this hypothesis, I ran two separate logistic regression models that included a measure of whether individuals had their credentials checked prior to immigrating. This was based on the assumption that individuals who had a job arranged prior to immigration would have also had their credentials assessed prior to immigrating. The first regression included only those who lived in Toronto, Montreal, or Vancouver and the second included only individuals who did not live in those three cities. The results indicated that this particular variable was not a significant factor in the likelihood of a job match for either group. Further research is thus needed in order to explore this relationship.

Model 1b: Effects of Human Capital Factors on Likelihood of a Unit Group Match

With the addition of human capital factors, age, visible minority status, and the CMA variable all remain statistically significant with virtually no change in the magnitudes of their odds ratios. The effect of immigrating to Canada from Europe is no longer statistically significant with the addition of the human capital variables, nor is the effect of arriving in Canada under the "Refugee or Other" admission class. Therefore, the disadvantage Europeans and refugees experience is explainable in human capital terms. However, the "Business" admission class becomes significant with the addition of this new set of variables. Business immigrants are about two times more likely of obtaining a job match during their first two years in Canada than skilled workers when human capital characteristics are accounted for, countering my initial hypothesis (OR=2.09, $p<0.05$).

The results indicate that human capital factors affect the likelihood of an immigrant obtaining a unit group job match. Of the different levels of education, an immigrant with a high school education or lower is over two times more likely to obtain a job match during his or her first two years in Canada than an immigrant who holds a Bachelor's degree (OR=2.26, $p<0.01$). This supports my initial hypothesis that expects a negative relationship between one's level of education and the likelihood of obtaining a job match (i.e. immigrants with a lower level of education are more likely to obtain a job match). Because immigrants with a high school diploma or lower are more likely to work in jobs where educational credentials have little importance, their intended occupations may be more easily obtained upon immigration than individuals with a Bachelor's degree who are likely seeking occupations that require higher skill levels.

Both the English and French language proficiency variables are also statistically significant. A one-unit increase in an immigrant's English proficiency score (which ranges from 0 to 100) results in a 2% increase in the odds of obtaining a job match (OR=1.02; $p<0.001$). A one-unit increase in an immigrant's French proficiency score increases his or her odds of a unit group job match by 1% (OR=1.01; $p<0.001$). These results are in accordance with the hypothesis which anticipates positive relationships between proficiency in English or French and employment success. While both English

and French language proficiency variables have a positive relationship with the likelihood of a job match at the unit group level, fluency in English has a slightly greater effect than fluency in French.

The previous work experience variable is also a highly significant predictor of the likelihood of an immigrant obtaining a unit group job match. This variable indicates whether or not an individual's job prior to immigrating was the same as his or her intended occupation at the unit group level. Immigrants who have work experience in their intended occupation prior to immigration are almost four times more likely to obtain a job match than those who did not (OR=3.92; $p<0.001$). This supports the hypothesis that immigrants with previous work experience in their intended occupations experience greater employment success in Canada. This finding also indicates that foreign work experience gives immigrants an advantage in the labour market and may not always be discounted by Canadian employers.

Model 1c: Effect of the SES of Intended Occupation on Likelihood of a Unit Group Match

The addition of the socio-economic status (SES) score of intended occupation does not greatly affect the age, visible minority status, or CMA variables. The odds of a visible minority obtaining a job match when compared to a non-visible minority are slightly lower, but the result maintains that visible minority immigrants are less likely than non-visible minority immigrants to obtain a job match during their first two years in Canada (OR=0.58; $p<0.05$). The effect of living in a major CMA differs only slightly from Model 1b, indicating that immigrants living in Montreal, Toronto, or Vancouver are less likely to obtain a job match than immigrants who live elsewhere (OR=0.68, $p<0.001$). In addition, only one region of origin is statistically significant with the addition of the SES variable. The data indicate that an immigrant from the Caribbean or Guyana is less likely to obtain a unit group job match than a North American immigrant (OR=0.35, $p<0.05$). This finding supports the hypothesis that immigrants who arrive from non-traditional source regions will have less employment success than those from a traditional source region such as of North America.

Some variables lose statistical significance with the addition of the SES variable. The "Business" admission class is no longer a significant variable in Model 1c. The "High School or

Lower" level of education also loses statistical significance in Model 1c and no variables that represent immigrants' levels of education are significant predictors of a unit group job match when the SES of intended occupation variable is entered in the model.

The language proficiency variables retain their high level of significance in this model. Both English and French language proficiency remain statistically significant when the SES variable is added to the model. The size of the odds ratio for each remains unchanged. When controlling for all other variables, an immigrant who has the highest score for English language proficiency (i.e. a score of "100") has a 55% probability[11] of obtaining a job match at the unit group level. Comparatively, the probability that an immigrant who has a mid-range English language proficiency score (i.e. a score of "50") has a probability of obtaining a unit group match that is about 34% when all other variables are held constant. These findings support my initial research hypothesis that assumes a positive relationship between official language proficiency and employment success.

The previous experience variable also remains highly significant in Model 1c. An individual who worked in his or her intended occupation prior to immigrating has slightly greater odds of finding a unit group job match when the SES of his or her intended occupation is taken into account. An immigrant with previous work experience is more than four times more likely to obtain a unit group job match than an immigrant who does not have previous experience in his or her intended occupation (OR=4.10, $p<0.001$). This again supports this research hypothesis regarding this variable.

The SES of immigrants' intended occupations is also a highly significant predictor of the likelihood of obtaining a job match at the unit group level. The data show that for every increase of one in the SES score of an immigrant's intended occupation, there is a 15% decrease in his or her odds of obtaining a job match (OR=0.85; $p<0.001$). This result supports the hypothesis which expects a negative relationship between the SES of an immigrant's intended occupation and his or her employment success. That is, immigrants who intend to work in high-status occupations are predicted

[11] Predicted probabilities are calculated with the following formula from Menard (1995:13):

$$P(Y=1) = \exp^{\alpha+\beta_1 X_1+\beta_2 X_2+\ldots+\beta_k X_k} / 1 + \exp^{\alpha+\beta_1 X_1+\beta_2 X_2+\ldots+\beta_k X_k}$$

to have less employment success (in terms of their likelihood of obtaining unit group job match) than those whose intended occupations have lower SES scores.

Model 1d: Effects of Occupational Characteristics on Likelihood of a Unit Group Match

The addition of occupational characteristics affects the statistical significance of only one variable in the model: age is no longer a significant predictor of the likelihood of a job match at the unit group level. This suggests that the job traits of immigrants' intended occupations may vary by age. The sizes of the effects for several of the other variables are only slightly affected with the inclusion of occupational characteristics. In addition, only one of the occupational characteristics, "Clerical Perception", is a significant predictor of the likelihood that an immigrant will obtain a unit group job match.

Of the ascribed and demographic variables, both visible minority status and whether or not an immigrant lives in a major CMA remain statistically significant. The data continue to show that visible minority immigrants are less likely to obtain a unit group job match than non-visible minorities (OR=0.59; $p<0.01$). This result further supports the hypothesis, indicating that it is a fairly strong finding, even when various characteristics of immigrants' intended occupations are taken into account. Individuals who immigrate to a major CMA also continue to be at a disadvantage when compared to those who immigrate to other areas of Canada, offering further opposition to my original hypothesis that immigrants who live in Montreal, Toronto, or Vancouver will have greater employment success than immigrants living in other areas of Canada.

Of the regions of origin variables, being from the Caribbean or Guyana continues to be a significant predictor of obtaining a unit group job match. When occupational characteristics are controlled, the size of the effect of being from the Caribbean or Guyana decreases slightly from Model 1c (OR=0.36; $p<0.05$). However, this finding supports the hypothesis that immigrants from more traditional source regions such as North America will have greater employment success in Canada than those from non-traditional source regions such as the Caribbean or Guyana. Also, the effects of immigrants' English and French language proficiency scores remain the same when occupational

characteristics are controlled, lending further support to the hypothesis which anticipates a positive relationship between language proficiency in an official language and immigrant employment success.

With the addition of occupational characteristics, the positive effect of having previous work experience in one's intended occupation decreases, but only slightly. The results show that immigrants with previous work experience can still expect more than four times greater odds of obtaining a unit group job match than those without previous experience in their intended occupations (OR=4.03; $p<0.001$). Again, this finding supports my original hypothesis as well as the broader assumptions of human capital theory which state that individuals with more relevant work experience will obtain greater employment success than those without.

The hypothesis regarding the SES of an immigrant's intended occupation also continues to be supported in this model. Even when other occupational characteristics are added, the SES of an immigrant's intended occupation maintains a negative relationship with the likelihood that he or she will obtain a unit group job match within his or her first two years in Canada. The data show that, for every increase of one in the SES score of an immigrant's intended occupation, he or she can expect a 27% decrease in his or her odds of obtaining a unit group job match (OR=0.73; $p<0.001$). To illustrate this effect, when all other variables are held constant, the predicted probability of an immigrant who is completely fluent in English obtaining employment as a physicist (which has a high SES score) is about 11% while the predicted probability of an immigrant who is completely fluent in English obtaining employment as a cook (which has a low SES score) is about 48%. Therefore, the effect that the SES score of one's intended occupation has on the likelihood of him or her obtaining a unit group job match continues to support my theory that immigrants who seek higher-status occupations may be experiencing exclusion from these occupations via the process of social closure.

In terms of the effects that other occupational characteristics may have on the likelihood of an immigrant obtaining a unit group job match, only the "Clerical Perception" variable is statistically significant. The data indicate that, for every increase of one percentile in the clerical perception required of an immigrant's intended occupation, he or she is predicted to face a 1% increase in his or

her odds of obtaining a unit group job match (OR=1.01; $p<0.05$). To put this finding into context, if an immigrant intends to work as a statistician, an occupation that requires the highest level of clerical perception (ninety-fifth percentile), the predicted probability of him or her obtaining employment in that occupation is about 9% when all other variables are held constant. However, the predicted probability of an immigrant obtaining employment as a nanny, an occupation that requires a low level of clerical perception (fifth percentile) is about 6% when all other variables are held constant. When one accounts for SES scores and clerical perception levels and assumes the highest level of English language proficiency, holding all other variables constant, the differences between the probabilities of obtaining employment as a statistician versus a nanny diverge quite a bit. Considering these factors, the predicted probability of an immigrant who intends to work as a statistician obtaining employment in that occupation is less than 1% (0.02%) while the predicted probability of an immigrant who intends to work as a nanny obtaining a job match is about 50%. Therefore, as these data indicate, the "Clerical Perception" aptitude has some impact on obtaining employment in one's intended occupation; however, the effect of the SES score of one's intended occupation is much more influential.

Model 2: Logistic Regression for Major Group Job Match

The following sections discuss the results of the influence that various factors have on the likelihood of obtaining a major group job match. Model 2a will discuss the effects of ascribed and demographic factors and Model 2b examines the effects of human capital factors. The socio-economic status scores of immigrants' intended occupations are included in Model 2c, and the effects of other occupational characteristics of immigrants' intended occupations will be discussed in the fourth section (Model 1d). Results from these models can be found in Table 7.5.

Model 2a: Effects of Ascribed and Demographic Factors on Likelihood of a Major Group Match

Several of the ascribed and demographic characteristics that are found to be significant in Model 1a are also significant predictors of the likelihood of a major group match. Age, visible minority status, and whether or not one lives in a major CMA are all statistically significant predictors of the likelihood that an immigrant will obtain a job match at the major group level. All three of these variables have a

TABLE 7.5: MODEL 2 -LOGISTIC REGRESSION ON OVERALL JOB MATCH (MAJOR GROUP)

	Model 2a			Model 2b			Model 2c			Model 2d		
	β	**SE**	**OR**	**β**	**SE**	**OR**	**β**	**SE**	**OR**	**β**	**SE**	**OR**
Intercept	1.848***	0.462	6.35	0.012	0.530	1.01	0.270	0.544	1.31	-0.815	0.675	0.44
Sex	-0.154	0.098	0.86	0.204*	0.102	1.23	0.239*	0.104	1.23	0.188	0.120	1.21
Age at Immigration	-0.036***	0.007	0.96	-0.039***	0.007	0.96	-0.038***	0.007	0.96	-0.033***	0.007	0.97
Visible Minority Status	-0.484**	0.178	0.62	-0.438*	0.174	0.65	-0.474**	0.174	0.62	-0.460**	0.179	0.63
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.443***	0.090	0.64	-0.352***	0.093	0.70	-0.362***	0.094	0.70	-0.395***	0.097	0.67
Region of Origin (North America=Reference Category)												
Africa	-0.685	0.383	0.50	-0.663	0.389	0.52	-0.661	0.392	0.52	-0.755	0.389	0.47
Asia	-0.709	0.388	0.49	-0.505	0.385	0.60	-0.519	0.388	0.59	-0.625	0.388	0.53
Caribbean or Guyana	-0.660	0.448	0.52	-0.716	0.454	0.49	-0.719	0.457	0.49	-0.813	0.461	0.44
Europe	-0.678	0.360	0.51	-0.455	0.366	0.63	-0.498	0.372	0.61	-0.574	0.371	0.56
Middle East	-0.623	0.467	0.54	-0.525	0.471	0.59	-0.567	0.472	0.57	-0.737	0.476	0.48
Oceania	-0.756	0.602	0.47	-0.790	0.596	0.45	-0.858	0.596	0.42	-1.015	0.569	0.36
South or Central America	-0.596	0.422	0.55	-0.235	0.428	0.79	-0.214	0.431	0.81	-0.298	0.436	0.74
Admission Class (Skilled Worker=Reference Category)												
Business	0.164	0.288	1.18	0.308	0.301	1.36	0.187	0.230	1.21	0.286	0.311	1.33
Family	0.041	0.202	1.04	0.019	0.219	1.02	-0.060	0.222	0.94	0.018	0.225	1.02
Provincial Nominee	0.275	0.384	1.32	0.121	0.397	1.13	0.026	0.395	1.03	0.194	0.418	1.21
Refugee or Other	-0.779	0.514	0.46	-0.405	0.559	0.67	-0.492	0.549	0.61	-0.290	0.575	0.75
Level of Education (Bachelor's Degree= Reference Category)												
High school or Lower	—	—	—	0.672**	0.217	1.96	0.462*	0.228	1.59	0.577*	0.235	1.78
Some Trade School, College, or University	—	—	—	-0.118	0.202	0.89	-0.239	0.207	0.79	-0.188	0.216	0.83
Trade School or College Complete	—	—	—	0.354*	0.143	1.42	0.220	0.149	1.25	0.266	0.156	1.30
Master's Degree or Higher	—	—	—	0.015**	0.303	1.02	0.327**	0.102	1.39	0.379***	0.104	1.46

TABLE 7.5 Continued

	Model 2a			Model 2b			Model 2c			Model 2d		
	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Language Proficiency												
English	—	—	—	0.015***	0.002	1.02	0.014***	0.002	1.01	0.016***	0.002	1.02
French	—	—	—	0.007***	0.002	1.01	0.006***	0.002	1.01	0.008***	0.002	1.01
Previous Experience	—	—	—	0.584***	0.084	1.79	0.607***	0.084	1.83	0.595***	0.088	1.81
SES of Intended Occupation	—	—	—	—	—	—	-0.096**	0.034	0.91	-0.240**	0.064	0.79
Aptitudes for Intended Occupation												
Verbal Ability	—	—	—	—	—	—	—	—	—	-0.003	0.005	1.00
Numerical Ability	—	—	—	—	—	—	—	—	—	0.013**	0.003	1.01
Spatial Perception	—	—	—	—	—	—	—	—	—	0.006	0.003	1.01
Form Perception	—	—	—	—	—	—	—	—	—	-0.001	0.004	1.00
Clerical Perception	—	—	—	—	—	—	—	—	—	0.005*	0.002	1.01
Motor Co-ordination	—	—	—	—	—	—	—	—	—	-0.001	0.007	1.00
Finger Dexterity	—	—	—	—	—	—	—	—	—	0.004	0.006	1.00
Manual Dexterity	—	—	—	—	—	—	—	—	—	-0.005	0.007	0.99
D.P.T. Scores for Intended Occupation												
Data/Information	—	—	—	—	—	—	—	—	—	-0.044	0.062	0.96
People	—	—	—	—	—	—	—	—	—	0.036	0.036	1.04
Things	—	—	—	—	—	—	—	—	—	-0.006	0.024	0.99
Number of Jobs Held Since Immigrating	—	—	—	—	—	—	—	—	—	-0.001	0.045	1.00

Notes:
Dependent Variable: Overall Major Group Job Match: 1= Obtained Job Matching Intended Occupation, 0= Did Not Obtain Job Matching Intended Occupation
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and have held at least one job since immigrating
β = Logistic Regression Coefficient; SE = Standard Error; OR = Odds Ratio
Sample Size: N=2,985; Model 2a: n=2,969; Model 2b: n=2,930; Model 2c: n=2,930; Model 2d: n=2,930
All coefficients and standard errors were estimated based on bootstrap weight = 1,001
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001

negative relationship with the likelihood of a major group job match. Sex continues to be a non-significant factor in predicting the likelihood of a job match.

Age is again a highly significant predictor of the likelihood of a job match. The data indicate that for every one year increase in an immigrant's age, there is a 4% decrease in his or her odds of obtaining a job match (OR= 0.96, $p<0.001$). Thus, older immigrants are less likely to obtain job matches than younger immigrants. As in the unit group model, the data indicate that visible minority immigrants are less likely to obtain a major group job match than non-visible minority immigrants (OR=0.62; $p<0.01$).

The results for the CMA variable also demonstrate that an immigrant who lives in a major CMA (Toronto, Montreal, or Vancouver) is less likely to obtain a major group job match than an immigrant who lives elsewhere (OR=0.64; $p<0.001$). These results further disconfirm the hypothesis that living in a major CMA will positively affect the employment success of immigrants. The remaining results indicate that region of origin and immigrant admission class variables are not statistically significant predictors of the likelihood of obtaining a major group job match. Within Model 2a only age, visible minority status, and CMA are found to have a significant effect on the likelihood of a job match at this level. All three of these variables have a negative relationship with major group job match.

Model 2b – Effects of Human Capital Factors on the Likelihood of a Major Group Match

The addition of human capital factors results in some changes to the significance and effects of the ascribed and demographic variables. While the regions of origin and immigrant admission class variables continue to not be statistically significant, the sex variable becomes a statistically significant predictor. When human capital factors are controlled, immigrant men have a greater likelihood of obtaining a job match within their first two years in Canada than immigrant women (OR=1.23, $p<0.05$). This finding supports this research hypothesis which anticipates greater employment success for immigrant men than for immigrant women and also indicates that the effect of sex is contingent on how the model is specified.

The addition of human capital variables does not affect the influence of age on an immigrant's odds of obtaining a major group job match. Visible minority status also remains statistically significant with the addition of human capital factors. In comparison to Model 2a, accounting for human capital factors results in slightly better odds for visible minorities in obtaining a job match at the major group level. The addition of human capital factors also slightly improves the odds of a job match for immigrants living in a major CMA (OR=0.70; $p<0.001$).

Almost all of the human capital variables entered into the model have statistically significant effects on the likelihood of a job match at the major group level. The results indicate that an immigrant who has a high school diploma or lower is almost two times more likely to obtain a major group job match than an immigrant with a Bachelor's degree when all other factors are controlled (OR=1.96, $p<0.01$). Similarly, an immigrant who has completed trade school or college is more likely to obtain a job match at the major group level than an immigrant with a Bachelor's degree (OR=1.42, $p<0.05$). There is also a positive relationship between having a Master's degree or higher and the likelihood of a major group job match. An immigrant with this level of education has slightly greater odds of obtaining a job match than a Bachelor's degree holder (OR=1.02, $p<0.01$). This particular finding counters this research hypothesis which anticipates that immigrants with higher educational credentials experience more difficulties in obtaining a job match than those with lower levels of education.

Both of the language proficiency variables are highly significant predictors of a major group job match. The data indicate that an immigrant's odds of obtaining a job match increase as his or her proficiency in an official language increases. These results support this research hypotheses that higher language proficiency in English or French results in greater employment success for immigrants. Whether or not an immigrant has work experience in his or her intended occupation prior to immigration also has a positive relationship with the likelihood of obtaining a major group job match. When all other variables are controlled, an immigrant with previous experience is more likely to obtain a job match than one who does not have previous experience (OR=1.79, $p<0.001$). This finding is in

accordance with this research hypothesis that anticipates a positive relationship between previous experience and employment success.

Model 2c: Effect of the SES of Intended Occupation on Likelihood of a Major Group Match

The addition of the SES variable does not greatly affect the variables found to be significant in the previous models. When the SES variable is included, the size of the effects of both the sex variable and the age variable are the same as in Model 2b (OR=1.23; $p<0.05$ and OR=0.96; $p<0.001$ respectively). Therefore, the hypotheses regarding the effect of sex and age on immigrants' employment success continue to be supported. In addition, the size of the effect of visible minority status is slightly larger when the SES of intended occupation is included in the model (OR=0.62; $p<0.01$). However, the results continue to support my original hypothesis that non-visible minority immigrants experience greater employment success than visible minority immigrants. The results of the CMA variable remain the same when the SES of one's intended occupation is included in the model. The data continue to show that immigrants who live in Montreal, Toronto, or Vancouver are at a disadvantage in terms of obtaining a job match at the major group level compared to immigrants who live elsewhere in Canada (OR=0.70; $p<0.001$). Therefore, this finding is quite robust and continues to counter my original hypothesis.

The addition of the SES of intended occupation variable changes the effects of some of the human capital factors on the likelihood of obtaining a major group job match to some extent. The effect of an immigrant having completed trade school or college is no longer statistically significant when SES scores are accounted for. However, having a high school diploma or lower and having a Master's degree or higher remain significant predictors of a major group job match when the SES of intended occupation is entered in the model. The data show that, when all other factors are controlled, an immigrant with a high school diploma or lower is more likely to obtain a major group job match than an immigrant with a Bachelor's degree (OR=1.59, $p<0.05$). Also, immigrants with a Master's degree or higher have a greater likelihood of obtaining a major group job match than an immigrant with a Bachelor's degree only (OR=1.39, $p<0.001$). While the finding regarding immigrants with a

high school diploma or lower supports my assumption that immigrants with lower levels of education experience greater employment success, the finding regarding those who hold Master's degrees or higher refutes this general assumption.

The effects of English and French language proficiency remain highly significant with the addition of the SES of intended occupation variable. The effect that English language proficiency has on the likelihood of a major group job match is slightly smaller than in Model 2b, while the results for the French language proficiency variable remain unchanged (OR=1.01; $p<0.001$ and OR=1.01, $p<0.001$ respectively). Again, this research hypothesis regarding proficiency in an official language is supported by these results which indicate a positive relationship between proficiency and employment success.

Previous work experience in one's intended occupation also remains highly significant with the inclusion of the SES variable. The results indicate increased odds of a job match from Model 2b for an immigrant with previous work experience from Model 2b. This continues to indicate that an immigrant with work experience in his or her intended occupation prior to immigration is more likely to obtain a major group job match than an immigrant without previous experience (OR=1.83; $p<0.001$). These results support this research hypothesis which anticipates a positive relationship between previous work experience and immigrant employment success.

The SES score of an immigrant's intended occupation is also a statistically significant predictor of the likelihood of him or her obtaining a major group job match. For every increase of one in the SES score of an immigrant's intended occupation, there is a 9% decrease in his or her odds of obtaining a job match (OR=1.91; $p<0.01$). This finding continues to support the hypothesis which anticipates a negative relationship between the SES of intended occupation and employment success. Therefore, the higher the SES ranking of an immigrant's intended occupation, the less employment success he or she will experience in Canada.

Model 2d: Effects of Occupational Characteristics on the Likelihood of a Major Group Match

The addition of occupational characteristics affects the statistical significance of only one variable. Sex is no longer a significant predictor of the likelihood of a major group job match when occupational characteristics are controlled. However, other ascribed and demographic factors such as age, visible minority status, and living in major CMA continue to be significant predictors. Several human capital variables also have statistically significant relationships with the likelihood of a major group job match. Some of the occupational aptitude variables are also significant in Model 2d.

While the effect of an immigrant's age is slightly smaller when occupational characteristics are controlled, the negative relationship between age and the likelihood of a job match at the major group level remains (OR=0.92; $p<0.001$). This finding continues to support this research hypothesis that younger immigrants experience greater employment success than older immigrants; this result also supports the discrimination hypothesis with respect to age discrimination. The discrimination hypothesis also continues to be supported with respect to visible minority status. The results indicate that visible minority immigrants are less likely to obtain a job match at the major group level than non-visible minority immigrants in this model (OR=0.67; $p<0.01$). Therefore, despite accounting for human capital and occupational characteristics, the finding that visible minorities are at a disadvantage compared to non-visible minorities continues to be strong.

The CMA variable also continues to be a statistically significant predictor of the likelihood of a job match. When occupational characteristics are added to the model, the magnitude of the effect of living in a major CMA is slightly larger, indicating that immigrants who live in a major CMA are less likely to obtain a major group job match than those who live in other areas of Canada (OR=0.67; $p<0.001$). Again, this finding counters my original hypothesis and suggests that those who live in Montreal, Toronto, or Vancouver do not have an advantage over immigrants who live in other areas in terms of obtaining a job match.

Several of the human capital variables maintain their statistical significance in Model 2d. The data indicate that immigrants with the lowest level of education (i.e. "High School Diploma or Lower")

are more likely to obtain a job match than those with a Bachelor's degree when job traits are controlled (OR=1.78; $p<0.05$). Immigrants whose highest level of education outside of Canada is a Master's degree or higher are also more likely to obtain a major group job match than immigrants with a Bachelor's degree only (OR=1.46; $p<0.001$). While the former result supports my original hypothesis that those with lower levels of education experience greater success in obtaining job matches, the latter result disproves this assumption. These findings indicate that immigrants with levels of education that are either lower than or higher than a Bachelor's degree are more likely to obtain a job match than those with a Bachelor's degree only. These results will be discussed at length in Chapter Eleven.

In addition to levels of education, the language proficiency variables are again found to be significant predictors of the likelihood of a major group job match. The positive relationships between the English and French language variables and the likelihood of a major group job match continue to support my original research hypothesis which assumes that the higher an immigrant's proficiency in English or French, the greater employment success he or she experiences in Canada. Whether or not an immigrant has worked in his or her intended occupation prior to immigrating also continues to be a statistically significant predictor of the likelihood of obtaining a job match; however, the magnitude of this effect is slightly smaller when occupational characteristics are accounted for (OR=1.81; $p<0.001$). This finding supports my original hypothesis that immigrants with previous experience in their intended occupations experience greater employment success in Canada than those without.

With the addition of occupational characteristics, the SES of an immigrant's intended occupation continues to be a statistically significant predictor of the likelihood of a major group job match (OR=0.79; $p<0.01$). This lends further support to the hypothesis that immigrants who intend to work in high-status occupations experience less employment success than those who intend to work in lower-status occupations due to the process of social closure. Some of the aptitudes associated with immigrants' intended occupations also have statistically significant relationships with obtaining a job match at the major group level. The data show that the "Numerical Ability" and "Clerical Perception" aptitudes are significant in this model, although these effects are not large (OR=1.01; $p<0.01$ and

OR=1.005; $p<0.01$ respectively). Both indicate positive relationships with the likelihood of a job match, countering the hypothesis regarding the aptitude variables which assumes that the higher the aptitude required for an immigrant's intended occupation, the less likely that he or she will obtain a job match. Also, similar to the results from Model 1, the complexity scores of job tasks relating to data, people, or things are not statistically significant when determining the likelihood of a major group job match. The last variable entered, number of jobs held since immigration, is also not statistically significant when predicting the likelihood of an immigrant obtaining a major group job match. This indicates that the number of jobs an immigrant holds in Canada does not necessarily improve or hinder his or her chances of obtaining a job match within the first two years after his or her arrival.

Model 3: Logistic Regression for Skill Type Match

The models discussed below indicate whether ascribed and demographic characteristics (Model 3a), human capital factors (Model 3b), the SES of an immigrant's intended occupation (Model 3c), and other occupational characteristics of intended occupation (Model 3d) are significant predictors of an immigrant obtaining employment in Canada that matches his or her intended occupation. The coefficients, standard errors, and levels of significance can be found in Table 7.6.

Model 3a: Effects of Ascribed and Demographic Factors on Likelihood of a Skill Type Match

Results from this model indicate that similar ascribed and demographic factors are influential in predicting a skill type match as are found in predicting the likelihood of unit group and major group job matches. When all other ascribed and demographic variables are controlled, sex is not a significant predictor of the likelihood of a skill type match. However, age, visible minority status, and whether or not an immigrant lives in a major CMA do have statistically significant relationships with the likelihood of a skill type job match in this model. In addition, the data indicate that a significant relationship between the "Africa" variable and the likelihood of a skill type match exists. Thus, immigrants from Africa are less likely to obtain a skill type match than immigrants from North America (OR=0.39, $p<0.05$). This supports my general research hypothesis that individuals who

TABLE 7.6: MODEL 3 - LOGISTIC REGRESSION ON OVERALL SKILL TYPE MATCH

	Model 3a			Model 3b			Model 3c			Model 3d		
	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Intercept	2.398***	0.479	11.00	0.466	0.535	1.59	0.890	0.549	2.44	1.083	0.685	2.95
Sex	-0.012	0.091	0.99	0.030	0.009	1.03	0.066	0.095	1.07	0.127	0.102	1.13
Age at Immigration	-0.027***	0.006	0.97	-0.030***	0.006	0.97	-0.030***	0.006	0.97	-0.025***	0.007	0.97
Visible Minority Status	-0.492**	0.177	0.61	-0.458**	0.178	0.63	-0.498**	0.183	0.61	-0.490**	0.184	0.61
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.488***	0.092	0.61	-0.394***	0.097	0.68	-0.412***	0.098	0.66	-0.445***	0.102	0.64
Region of Origin (North America=Reference Category)												
Africa	-0.948*	0.423	0.39	-0.775	0.429	0.46	-0.787	0.435	0.45	-0.919*	0.453	0.40
Asia	-0.798	0.420	0.45	-0.567	0.425	0.57	-0.607	0.432	0.54	-0.733	0.450	0.48
Caribbean or Guyana	-0.850	0.454	0.43	-0.831	0.466	0.44	-0.896	0.474	0.41	-1.906*	0.495	0.15
Europe	-0.889	0.412	0.41	-0.561	0.418	0.57	-0.629	0.423	0.53	-0.723	0.442	0.49
Middle East	-0.621	0.489	0.54	-0.474	0.495	0.62	-0.543	0.450	0.58	-0.715	0.516	0.49
Oceania	-0.736	0.643	0.48	-0.716	0.650	0.49	-0.850	0.647	0.43	-1.033	0.649	0.36
South or Central America	-0.575	0.463	0.56	-0.153	0.474	0.86	-0.174	0.479	0.84	-0.271	0.497	0.76
Admission Class (Skilled Worker=Reference Category)												
Business	0.486	0.266	1.63	0.725*	0.295	2.07	0.586	0.302	1.80	0.623*	0.311	1.86
Family	0.309	0.192	1.36	0.312	0.210	1.37	0.213	0.214	1.24	0.205	0.217	1.23
Provincial Nominee	0.243	0.408	1.28	0.048	0.414	1.05	-0.110	0.413	0.90	0.155	0.428	1.17
Refugee or Other	-0.329	0.356	0.72	0.080	0.417	1.08	-0.048	0.387	0.95	0.035	0.421	1.04
Level of Education (Bachelor's Degree= Reference Category)												
High School or Lower	—	—	—	0.535*	0.216	1.71	0.220	0.227	1.25	0.331	0.233	1.39
Some Trade School, College, or University	—	—	—	-0.131	0.195	0.88	-0.297	0.202	0.74	-0.218	0.207	0.80
Trade School or College Complete	—	—	—	0.446**	0.143	1.56	0.255	0.148	1.29	0.353*	0.156	1.42
Master's Degree or Higher	—	—	—	0.164	0.098	1.18	0.223*	0.099	1.25	0.270**	0.101	1.31

TABLE 7.6 Continued

	Model 3a			Model 3b			Model 3c			Model 3d		
	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Language Proficiency												
English	—	—	—	0.018***	0.002	1.02	0.017***	0.002	1.02	0.016***	0.002	1.02
French	—	—	—	0.005***	0.002	1.01	0.004*	0.002	1.004	0.004*	0.002	1.004
Previous Experience	—	—	—	0.549***	0.084	1.73	0.586***	0.085	1.80	0.566***	0.089	1.76
SES of Intended Occupation	—	—	—	—	—	—	-0.149***	0.085	0.86	-0.178**	0.063	0.84
Aptitudes for Intended Occupation												
Verbal Ability	—	—	—	—	—	—	—	—	—	-0.006	0.002	0.99
Numerical Ability	—	—	—	—	—	—	—	—	—	0.010**	0.003	1.01
Spatial Perception	—	—	—	—	—	—	—	—	—	-0.006*	0.003	0.99
Form Perception	—	—	—	—	—	—	—	—	—	0.009*	0.004	1.01
Clerical Perception	—	—	—	—	—	—	—	—	—	0.005**	0.002	1.01
Motor Co-ordination	—	—	—	—	—	—	—	—	—	0.001	0.007	1.00
Finger Dexterity	—	—	—	—	—	—	—	—	—	0.001	0.006	1.00
Manual Dexterity	—	—	—	—	—	—	—	—	—	-0.018*	0.007	0.98
D.P.T. Scores for Intended Occupation												
Data/Information	—	—	—	—	—	—	—	—	—	-0.173**	0.058	0.84
People	—	—	—	—	—	—	—	—	—	0.061*	0.031	1.06
Things	—	—	—	—	—	—	—	—	—	0.040	0.022	1.04
Number of Jobs Held Since Immigrating	—	—	—	—	—	—	—	—	—	0.086*	0.041	1.09

Notes:
Dependent Variable: Overall Skill Type Job Match: 1= Obtained Job Matching Intended Occupation, 0= Did Not Obtain Job Matching Intended Occupation
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and had at least one job since immigrating
β = Logistic Regression Coefficient; SE = Standard Error; OR = Odds Ratio
Sample Size: N=2,985; Model 3a: n=2,969; Model 3b: n=2,930; Model 3c: n=2,930; Model 3d: n=2,930
All coefficients and standard errors were estimated based on bootstrap weight = 1001
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001

immigrate to Canada from "non-traditional" regions of the world will have less employment success than immigrants from a "traditional" region such as North America.

Age and whether or not an immigrant lives in a major CMA are also statistically significant predictors of a skill type match. For every one year increase in age, there is a 3% decrease in an immigrant's odds of obtaining a job that matches the skill type of his or her intended occupation (OR=0.97, $p<0.001$). This continues to support the hypothesis which expects a negative relationship between age and employment success for immigrants. As in previous models, visible minority immigrants are found to be less likely to obtain a skill type match than non-visible minority immigrants (OR=0.61, $p<0.01$). This finding also continues to support this research hypothesis regarding the relationship between visible minority status and employment success. In addition, the results concerning the CMA variable reveal that an immigrant who lives in a major CMA upon immigrating to Canada is less likely to obtain a job that matches the skill type of his or her intended occupation than an immigrant who lives elsewhere (OR=0.61, $p<0.01$). Again, this continues to counter the hypothesis that immigrants living in major CMAs experience greater employment success than those who live elsewhere.

Model 3b: Effects of Human Capital Factors on the Likelihood of a Skill Type Match

With the addition of human capital factors, most of the ascribed and demographic variables that are statistically significant in Model 3a retain their significance. The effect of age is the same; however, the addition of human capital variables slightly improves the odds of a visible minority obtaining a skill type match (OR=0.63, $p<0.05$). Although visible minority immigrants are still less likely to obtain a skill type match, their relative disadvantage is lessened when variations in human capital factors are accounted for. Thus, some of the disadvantage experienced by visible minorities is explained by variations in human capital factors. The odds of a job match with the skill type of an immigrant's intended occupation also improve slightly for immigrants living in one of the major CMAs in this model, although immigrants living in either Toronto, Montreal, or Vancouver continue to be less likely

to obtain a skill type match than an immigrant living elsewhere (OR=0.68, $p<0.001$). Sex continues to be a non-significant factor in predicting a skill type match in this model.

The one region of origin variable that indicates a statistically significant relationship with skill type match in Model 3a (i.e. Africa) is no longer significant when human capital factors are accounted for. This suggests that the negative effect of immigrating to Canada from Africa is attributable to human capital variables such as one's level of education, previous work experience, and official language proficiency. However, the addition of human capital factors does result in a statistically significant relationship between an immigrant admission class and the likelihood of a skill type match. The "Business" admission class of immigrants is a significant predictor of skill type match in this model. An immigrant who arrives under the "Business" class is over two times more likely to obtain a skill type match than an immigrant who arrives under the "Skilled Worker" admission class (OR=2.07, $p<0.05$). This suggests that when human capital factors are controlled individuals who are "Business" class immigrants are more likely to obtain a job that matches the skill type of their intended occupations than "Skilled Worker" immigrants, which counters my original hypothesis.

Many of the human capital factors also have statistically significant relationships with the likelihood of obtaining a skill type match. Two of the levels of education variables are significant predictors of a skill type match: "High School Diploma or Lower" and "Trade School or College Complete". An immigrant who has a high school education or lower has a greater likelihood of obtaining a skill type match than an immigrant with a Bachelor's degree (OR=1.71, $p<0.05$). Similarly, an immigrant who has completed trade school or college has better odds of obtaining a job that matches the skill type of his or her intended occupation than an immigrant with a Bachelor's degree (OR=1.56, $p<0.01$). These findings support my original hypothesis which anticipates that immigrants with lower levels of educational credentials will have greater success in finding a job that matches their intended occupations.

The previous work experience variable is also statistically significant. The data show that a positive relationship exists between work experience in one's intended occupation prior to immigration

and obtaining a skill type match. An immigrant who has previous work experience is more likely to obtain a skill type match than an immigrant without prior experience in his or her intended occupation (OR=1.73, $p<0.001$). Also, as in previous models, the variables measuring an immigrant's language proficiency in English or French are also statistically significant predictors of the likelihood of a skill type match. The data indicate that a one-unit increase in an immigrant's English language proficiency score results in a 2% increase in the odds of him or her obtaining a skill type match (OR=1.01, $p<0.001$). Similarly, as an immigrant's French language proficiency increases, his or her odds of obtaining a match increase (OR=1.005, $p<0.001$). These results again support the hypotheses regarding the relationship between official language proficiency and the employment success of immigrants – the higher one's proficiency in English or French, the greater his or her employment success in Canada.

Model 3c: Effect of the SES of Intended Occupation on Likelihood of a Skill Type Match

The addition of the SES variable changes the statistical significance of some of the variables. Both the "Business" class of the immigrant admission class categories and the level of education "High School Diploma or Lower" are no longer significant predictors of a skill type job match. In this model, the effect of age remains the same as in Model 3b (OR=0.97, $p<0.01$). The effect of visible minority status is slightly larger when the SES of intended occupation is controlled, further indicating that non-visible minority immigrants have greater employment success in Canada than visible minority immigrants (OR=0.61, $p<0.01$). Again, this also offers support to the racial discrimination thesis.

The effect of whether or not an immigrant lives in a major CMA is also slightly smaller when the SES of intended occupation is included in the model; however, an individual who immigrates to a major CMA is still less likely to obtain a skill type match than an immigrant who lives elsewhere in Canada (OR=0.66; $p<0.001$). These data continue to counter my original hypothesis which assumes that immigrants living in a major CMA will have greater employment success than those who live in other areas in Canada.

The results from the level of education variables are affected somewhat with the addition of the SES variable. As previously noted, the "High School Diploma or Lower" variable is no longer a significant predictor of the likelihood of a skill type match in this model. Therefore, when the effect of the SES of intended occupation is taken into account, the previous effect of having a high school education or lower is no longer a predictor of whether or not an immigrant will obtain a skill type match. The variable "Trade School or College Complete" also loses statistical significance with the addition of the SES variable. These results may be due in part to the fact that the SES of one's occupation is often related to his or her level of education, that is, immigrants with lower levels of education likely seek lower status occupations than those with a Bachelor's degree. However, the "Master's Degree or Higher" variable gains statistical significance in Model 3c. Therefore, when one controls for the SES of intended occupation, the relationship between holding a Master's degree or a higher degree becomes an important factor in predicting the likelihood of an immigrant obtaining a skill type match. The data in Model 3c show that an immigrant who holds a Master's degree is more likely to obtain a skill type match than an immigrant with a Bachelor's degree only ($OR=1.25$, $p<0.05$). This result in particular refutes the hypothesis which expects immigrants with lower levels of education to experience greater employment success than those with lower levels of education.

The English and French language proficiency variables remain statistically significant in this model. The relationships between English and French language proficiency and skill type match continue to be highly significant and positive relationships. Again, these results support the hypotheses which anticipate that immigrants with high levels of English or French language proficiency will experience greater employment success than those with lower levels of proficiency in English or French.

The variable indicating whether or not an immigrant has worked in his or her intended occupation prior to immigration also remains highly significant. With the addition of the SES variable, the effect that previous work experience has on the likelihood of an immigrant obtaining a skill type match is larger than in Model 3b. An immigrant with previous work experience is more likely to

obtain a job that matches the skill type of his or her intended occupation than an immigrant without previous experience (OR=1.80, p<0.001). This further supports this research hypothesis, as well as the assumption of human capital theory, that previous work experience has a positive relationship with immigrant employment success. It also continues to suggest that foreign work experience offers some benefit to immigrants in obtaining employment success in Canada.

The SES of an immigrant's intended occupation is also a highly significant predictor of the likelihood of an immigrant obtaining a skill type job match. For every increase of one in the SES score of an immigrant's intended occupation, the odds of him or her obtaining a skill type match decreases by 14% (OR=0.86, p<0.001). This finding again supports the hypothesis that immigrants who intend to work in occupations which have high SES scores will have more difficulty in the labour market (i.e. less employment success) than immigrants whose intended occupations have low SES scores. This indicates that the process of social closure may be preventing immigrants who seek higher-status occupations from obtaining employment in their intended occupations.

Model 3d: Effects of Occupational Characteristics on Likelihood of Skill Type Match

The addition of occupational characteristics has little effect on the statistical significance of the ascribed, demographic, and human capital factors. The effect of living in a major CMA is slightly larger in this model (OR=0.64, p<0.001). In addition, the size of the effect that the SES of one's intended occupation has on the likelihood of a skill type job match is minimally affected by the addition of other occupational factors. Several of the occupational factors are found to be statistically significant predictors of the likelihood of a skill type match, as is the number of jobs an immigrant has held since immigrating to Canada.

Two of the regions of origin variables are statistically significant. While the "Africa" variable regains significance from Model 3a, the "Caribbean or Guyana" variable becomes significant in this model. The data show that immigrants who arrive in Canada from African nations and from the Caribbean or Guyana are less likely to obtain skill type matches than those who arrive from areas of North America (OR=0.40, p<0.05 and OR=0.15, p<0.05 respectively). These findings support my

original hypothesis regarding immigrants' regions of origins – those from non-traditional source regions have less employment success than those from a traditional source region such as North America.

Business class immigrants are again found to have an advantage over immigrants who arrive under the "Skilled Worker" class. The data indicate that immigrants who arrive under the "Business" class have a greater likelihood of obtaining a skill type job match than skilled workers (OR=1.86, $p<0.05$). This counters this research hypothesis which expects skilled workers will experience greater employment success in Canada than immigrants who arrive under other admission class categories.

With respect to the human capital variables, two levels of education are found to be statistically significant predictors of the likelihood of a skill type match. The "Trade School or College Diploma" variable is again significant in this model; immigrants with this level of education are more likely to obtain a skill type match than immigrants with a Bachelor's degree (OR=1.42, $p<0.05$). In addition, immigrants with a Master's degree or higher have greater odds of a job match than Bachelor's degree holders. While the magnitude of the effect of holding a Master's degree or higher is lessened with the inclusion of occupational factors, the data indicate that those whose highest level of education outside of Canada is a Master's degree or higher are more likely to obtain a skill type job match than those with a Bachelor's degree only (OR=1.25, $p<0.01$). These findings both support and contradict my general hypothesis which anticipates a negative relationship between level of education and employment success. These results again indicate that immigrants with lower and higher levels of education experience greater employment success than those who hold Bachelor's degrees.

The results from the remaining human capital variables are similar to those in Model 3c. The English and French language proficiency variables continue to have positive relationships with the likelihood of a skill type match, supporting my original research hypotheses regarding language proficiency (OR=1.02, $p<0.001$ and OR=1.004, $p<0.05$ respectively). The magnitude of the effect of having previous work experience is slightly smaller in Model 3d; however, the data continue to show that immigrants who have work experience in their intended occupation prior to arriving in Canada are

more likely to obtain a skill type match than those without previous experience (OR=1.76, $p<0.001$). This finding also supports this research hypothesis that immigrants with previous work experience in their intended occupations experience greater employment success in Canada.

The effect that the SES of an immigrant's intended occupation has on the likelihood of obtaining a skill type match is slightly smaller when other occupational characteristics are included. However, this variable is still a statistically significant predictor of job match (OR=0.84, $p<0.01$). This finding continues to support the hypothesis based on the concept of social closure; immigrants who intend to work in high-status occupations have more difficulty obtaining a job in the same industry (i.e. skill type) as their intended occupations than those who intend to work in lower status occupations.

Of the nine aptitude variables entered in this model, five have statistically significant relationships with the likelihood of obtaining a skill type match. Results from two of the aptitudes variables support the hypothesis which assumes that the higher the aptitude required for an occupation, the less likely it is that an immigrant will obtain a job match. Both the "Spatial Perception" and the "Manual Dexterity" aptitudes support this hypothesis (OR=0.99, $p<0.05$ and OR=0.98, $p<0.05$ respectively). The remaining three aptitude variables that are statistically significant in Model 3d counter this research hypothesis. The "Numerical Ability", "Form Perception", and "Clerical Perception" variables all have positive relationships with the likelihood of an immigrant obtaining a skill type match. That is, the higher the aptitude associated with numerical, form perception, and clerical job tasks of an immigrant's intended occupation, the better the odds of him or her obtaining a job that matches the skill type of his or her intended occupation (OR=1.01, $p<0.05$ and OR=1.01, $p<0.01$ respectively).

In addition, two of the three DPT score variables also show statistically significant relationships with the dependent variable. However, the directions of the relationships differ between these two factors. The variable indicating the complexity of job tasks relating to data and information has a negative relationship with skill type match. That is, for every one-unit increase on the scale of complexity of job tasks involving data, there is a predicted decrease of about 16% in the odds of an

immigrant obtaining a skill type match (OR=0.86, p<0.01). However, an increase of one on the scale of complexity of job tasks relating to people results in a 6% increase in an immigrant's odds of obtaining a skill type match (OR=1.06, p<0.05). While the result for the "Complexity of Working with Data" variable supports this research hypothesis which anticipates a negative relationship between the complexity of DPT job tasks and employment success, the finding for the "Complexity of Working with People" variable counters this hypothesis.

Lastly, the number of jobs an immigrant has held since immigrating has a positive and statistically significant relationship with the likelihood of obtaining a skill type match. The results for this variable indicate that for every additional job that an immigrant holds since immigrating there is a 9% increase in his or her odds of obtaining a job in the same skill type as his or her intended occupation (OR=1.09, p<0.05). This finding indicates that the more Canadian experience an immigrant has, the more likely he or she is to obtain a job match, at least at the broad level of "skill type". This result thereby supports the general assumptions of human capital theory.

Model 4: Logistic Regression for Skill Level Match

The following sections discuss the effects that various factors have on the likelihood of obtaining a skill level match. Each section represents the addition of a different set of variables to the model. Model 4a discusses the effects of ascribed and demographic factors, followed by an assessment of the effects of human capital factors (Model 4b), the socio-economic status scores of immigrants' intended occupations (Model 4c), and other occupational characteristics of immigrants' intended occupations (Model 4d). Detailed results from these models can be found in Table 7.7.

Model 4a: Effects of Ascribed and Demographic Factors on Likelihood of a Skill Level Match

The effects of ascribed and demographic factors on the likelihood of obtaining a skill level match are discussed below. While the sex of an immigrant continues to be a non-significant variable, many of the variables that are significant in Models 1, 2, and 3 remain significant when skill level match is the dependent variable. There are, however, some results in this model that differ from the previously discussed results. The most striking difference is that visible minority status is not a significant

TABLE 7.7: MODEL 4 -LOGISTIC REGRESSION ON OVERALL SKILL LEVEL MATCH

	Model 4a			Model 4b			Model 4c			Model 4d		
	β	**SE**	**OR**	**β**	**SE**	**OR**	**β**	**SE**	**OR**	**β**	**SE**	**OR**
Intercept	3.049***	0.606	21.09	0.915	0.657	2.50	1.298	0.670	3.66	1.529	0.813	4.61
Sex	-0.006	0.094	0.99	0.014	0.098	1.01	0.000	0.109	1.00	0.000	0.109	1.00
Age at Immigration	-0.032***	0.007	0.97	-0.035***	0.007	0.97	-0.032***	0.007	0.97	-0.031***	0.007	0.97
Visible Minority Status	-0.319	0.175	0.73	-0.288	0.174	0.75	-0.345	0.180	0.71	-0.348	0.179	0.71
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.531***	0.090	0.59	-0.438***	0.092	0.65	-0.517***	0.095	0.60	-0.508***	0.095	0.60
Region of Origin (North America=Reference Category)												
Africa	-1.113*	0.560	0.33	-1.103*	0.561	0.33	-1.162*	0.564	0.31	-1.155*	0.060	0.31
Asia	-1.461**	0.560	0.23	-1.066	0.551	0.35	-1.128*	0.554	0.32	-1.127*	0.549	0.32
Caribbean or Guyana	-1.352*	0.613	0.26	-1.345*	0.610	0.26	-1.470*	0.619	0.23	-1.452*	0.614	0.23
Europe	-1.188*	0.531	0.31	-0.890	0.532	0.41	-1.008	0.537	0.37	-1.004	0.532	0.37
Middle East	-1.063	0.628	0.35	-0.896	0.634	0.41	-1.058	0.643	0.35	-1.043	0.637	0.35
Oceania	-1.340	0.761	0.26	-1.414	0.755	0.24	-1.670	0.742	0.19	-1.647	0.735	0.19
South or Central America	-1.216*	0.579	0.30	-0.723	0.585	0.49	-0.767	0.593	0.46	-0.754	0.588	0.47
Admission Class (Skilled Worker=Reference Category)												
Business	0.634	0.365	1.89	0.694	0.386	2.00	0.606	0.395	1.83	0.596	0.393	1.81
Family	-0.092	0.206	0.92	-0.075	0.222	0.93	-0.122	0.224	1.13	-0.117	0.223	0.89
Provincial Nominee	0.180	0.414	1.98	0.053	0.433	1.05	-0.155	0.452	0.86	-0.160	0.450	0.85
Refugee or Other	-0.869*	0.415	0.42	-0.403	0.452	0.67	-0.404	0.437	0.67	-0.435	0.433	0.65
Level of Education (Bachelor's Degree= Reference Category)												
High School or Lower	—	—	—	0.846***	0.240	2.33	0.538*	0.253	1.71	0.623*	0.269	1.86
Some Trade School, College, or University	—	—	—	0.104	0.205	1.11	-0.037	0.211	0.96	-0.046	0.217	0.95
Trade School or College Complete	—	—	—	0.417**	0.140	1.52	0.238	0.151	1.27	0.218	0.156	1.24
Master's Degree or Higher	—	—	—	0.505***	0.010	1.66	0.561***	0.100	1.75	0.583***	0.104	1.79

TABLE 7.7 Continued

	Model 4a			Model 4b			Model 4c			Model 4d		
	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Language Proficiency												
English	—	—	—	0.018***	0.002	1.02	0.017***	0.002	1.02	0.017***	0.002	1.02
French	—	—	—	0.011***	0.002	1.01	0.010***	0.002	1.01	0.010***	0.002	1.01
Previous Experience	—	—	—	0.192*	0.087	1.21	0.226**	0.087	1.25	0.278**	0.090	1.32
SES of Intended Occupation	—	—	—	—	—	—	-0.136***	0.036	0.87	-0.062	0.064	0.94
Aptitudes for Intended Occupation												
Verbal Ability	—	—	—	—	—	—	—	—	—	-0.015**	0.005	0.98
Numerical Ability	—	—	—	—	—	—	—	—	—	0.005	0.003	1.01
Spatial Perception	—	—	—	—	—	—	—	—	—	0.005	0.003	1.01
Form Perception	—	—	—	—	—	—	—	—	—	-0.004	0.004	1.00
Clerical Perception	—	—	—	—	—	—	—	—	—	0.006***	0.002	1.01
Motor Co-ordination	—	—	—	—	—	—	—	—	—	-0.004	0.007	1.00
Finger Dexterity	—	—	—	—	—	—	—	—	—	0.006	0.006	1.01
Manual Dexterity	—	—	—	—	—	—	—	—	—	0.002	0.007	1.00
D.P.T. Scores for Intended Occupation												
Data/Information	—	—	—	—	—	—	—	—	—	0.022	0.007	1.02
People	—	—	—	—	—	—	—	—	—	-0.053	0.033	0.95
Things	—	—	—	—	—	—	—	—	—	-0.064*	0.025	0.94
Number of Jobs Held Since Immigrating	—	—	—	—	—	—	—	—	—	-0.002	0.043	1.00

Notes:
Dependent Variable: Overall Skill Level Job Match: 1= Obtained Job Matching Intended Occupation, 0= Did Not Obtain Job Matching Intended Occupation
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and had at least one job since immigrating
β = Logistic Regression Coefficient; SE = Standard Error; OR = Odds Ratio
Sample Size: N=2,784; Model 4a: n=2,768; Model 4b: n=2,735 ; Model 4c: n=2,735
All coefficients and standard errors were estimated based on bootstrap weight = 1001
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001

predictor of the likelihood of obtaining a skill level match. However, an immigrant's age and whether or not he or she lives in a major CMA continue to be statistically significant predictors of the likelihood of a job match in Model 4a.

Older immigrants are found to be less likely to obtain a skill level match than younger immigrants (OR=0.97, $p<0.001$). This finding continues to support the hypothesis which anticipates a negative relationship between age and immigrant employment success. The CMA variable also indicates a negative relationship with skill level match. The data show that an individual who immigrates to Montreal, Toronto, or Vancouver is less likely to obtain a skill level match than an individual who immigrates to another area in Canada (OR=0.59, $p<0.001$). This result again counters my initial hypothesis which expects greater employment success for immigrants living in the major CMAs.

Unlike previous models, many of the regions of origin variables have statistically significant relationships with skill level match. Immigrants from Africa, Asia, the Caribbean or Guyana, Europe, and South or Central America are all found to be less likely to obtain a skill level match than immigrants from North America. Individuals from Asia have lesser odds of a job match than the other regions in comparison to North American immigrants (OR=0.23, $p<0.01$). These findings generally support the hypothesis regarding regions of origin which anticipates that immigrants from more traditional source regions experience greater employment success than immigrants who arrive from newer source regions (e.g. Africa). The data also suggest that immigrants from Europe have considerably lower odds than North American immigrants when all other ascribed and demographic variables are controlled (OR=0.31, $p<0.05$).

Only one admission class, "Refugee or Other", has a statistically significant relationship with the likelihood of obtaining a skill level match. An immigrant who is classified under the "Refugee or Other" category is less likely to obtain a skill level match than an immigrant classified under the "Skilled Worker" category (OR=0.42, $p<0.05$). These results support this research hypothesis that

"Skilled Worker" immigrants experience greater employment success than those immigrating under the "Refugee or Other" class.

Model 4b: Effects of Human Capital Factors on the Likelihood of a Skill Level Match

The addition of human capital factors affects the significance of some of the ascribed and demographic factors. While age and living in a major CMA still have negative and statistically significant relationships with skill level match, the "Refugee or Other" admission class is no longer a significant predictor of a job match. Some of the regions of origin variables also lose statistical significance when human capital factors are added to the model. Whether an immigrant is from Asia, Europe, or South or Central America are no longer significant predictors of the likelihood of a skill level match, while the "Africa" and "Caribbean or Guyana" variables remain significant. Even when accounting for variations in human capital factors, immigrants who arrive from Africa or the Caribbean or Guyana are still less likely to obtain a skill level match than immigrants arriving from North America (OR=0.33, $p<0.05$ and OR=0.26, $p<0.05$ respectively). Therefore, even when accounting for variations in their human capital, region of origin remains a significant factor for individuals from Africa or the Caribbean or Guyana who still have lower odds of a skill match compared to immigrants from North America.

Most of the human capital variables themselves have statistically significant relationships with the likelihood of obtaining a skill level match. Three of the variables that represent level of education are statistically significant: "High School Diploma or Lower", "Trade School or College Complete", and "Master's Degree or Higher". An immigrant who is represented in the "High School Diploma or Lower" category is over two times more likely to obtain a skill level match than an immigrant with a Bachelor's degree (OR=2.33, $p<0.001$). An immigrant who has completed trade school or college is also more likely to obtain a skill level match than a Bachelor's degree holder within his or her first two years in Canada (OR=1.52, $p<0.01$). These results suggest that lower levels of education translate into higher odds of obtaining a skill level match; however, immigrants with a Master's degree or higher also have higher odds of a skill level match compared to Bachelor's degree holders (OR=1.66,

p<0.001). Again, these findings suggest that immigrants with a Bachelor's degree experience less employment success than both immigrants with higher and lower levels of education.

The variables representing English and French language proficiency both have statistically significant relationships with the likelihood of obtaining a skill level match. Similar to the results in the previous models, as one's English language proficiency increases, his or her odds of obtaining a skill level match also increase. To compare, a one unit increase in an immigrant's English language proficiency score increases his or her odds of a match by 2% (OR=1.02, p<0.001) while a one-unit increase in French proficiency increases his or her odds of a skill level match by 1% (OR=1.01, p<0.001). These results continue to support the hypothesis regarding official language proficiency.

The last human capital variable entered, previous work experience is also highly significant. Whether or not an individual has worked in his or her intended occupation prior to immigrating to Canada has a positive, statistically significant relationship with the likelihood of obtaining a skill level match. An immigrant who has previous work experience is more likely to obtain a skill level match than an immigrant who has not worked in his or her intended occupation prior to immigrating (OR=1.21, p<0.001). This finding supports this research hypothesis which, based on the assumptions of human capital theory, anticipates a positive relationship between previous work experience and employment success.

Model 4c: Effect of the SES of Intended Occupation on Likelihood of a Skill Level Match

The addition of the SES variable impacts the results of some of the ascribed and demographic characteristics. While the age and CMA variables continue to have significant relationships with the likelihood of a skill level match, the regions of origin variables are again affected with the addition of the SES variable. When the SES of intended occupation is accounted for, the "Asia" variable regains statistical significance in the model. The "Africa" and "Caribbean or Guyana" regions of origin remain statistically significant in this model. With the addition of the SES variable to the model, individuals from Africa, Asia, and the Caribbean or Guyana are found to be less likely to obtain a skill level match than immigrants from North America (OR=0.31, p<0.05; OR=0.32, p<0.05; and OR=0.23, p<0.05

respectively). These data indicate that even when one controls for human capital factors, the SES of one's intended occupation, and other ascribed or demographic factors, immigrating to Canada from these regions has a significant and negative effect on the likelihood obtaining a skill level match. In general, these results support the hypothesis that immigrants from non-traditional source regions will experience lower employment success than those from traditional source regions.

The inclusion of the SES of intended occupation variable creates some changes in the relationships between level of education and the likelihood of a skill level match. The "Trade School or College Complete" variable is no longer statistically significant when the SES of intended occupation is accounted for. However, the "High School Diploma or Lower" and "Master's Degree or Higher" variables remain significant predictors of the likelihood of a skill level match. The data show that immigrants with a high school education or lower and immigrants with a Master's degree or higher are more likely to obtain a skill level match than immigrants with a Bachelor's degree (OR=1.71, $p<0.05$). Therefore, when the SES of an immigrant's intended occupation is controlled, the advantage that a Master's degree holder has over a Bachelor's degree holder becomes greater. While the relationship between the "High School Diploma or Lower" variable and the likelihood of a skill level match supports the hypothesis regarding the effect of the highest level of education complete, the results for the "Master's Degree or Higher" variable do not support this hypothesis. Again, this suggests that holding degree higher than a Bachelor's is beneficial to immigrants in obtaining a job match.

Controlling for the SES of intended occupation does not change the statistically significant effects that English or French language proficiency and previous work experience have on an immigrant's likelihood of obtaining a skill level match. Similar to Model 4b, a one unit increase in an immigrant's English or French language proficiency score increases his or her odds of a match (OR=1.02, $p<0.001$ and OR=1.01, $p<0.001$ respectively). These results again support the hypothesis that immigrants with higher English or French language proficiency scores will have greater employment success than immigrants with lower scores in English or French proficiency. Previous

work experience also remains a statistically significant predictor of the likelihood of a skill level match. When occupational characteristics are accounted for, an immigrant with previous work experience has 25% greater odds of a skill level match than an individual who did not work in his or her intended occupation prior to immigrating (OR=1.25, $p<0.01$). This continues to support the hypothesis that immigrants with previous work experience will have greater employment success.

Lastly, the SES of an immigrant's intended occupation is a highly significant predictor of the likelihood of obtaining a skill level match. The data indicate that with every increase of one in the SES score of an immigrant's intended occupation, his or her odds of obtaining a skill level match decrease by 13% (OR=0.87, $p<0.001$). This result supports my original hypothesis that the higher the SES of an immigrant's intended occupation, the lower employment success he or she experiences in Canada. This finding continues to lend credence to the theory that immigrants who seek high-status occupations experience the process of social closure when attempting to obtain employment in these occupations.

Model 4d: Effects of Occupational Characteristics on Likelihood of a Skill Level Match

The inclusion of occupational characteristics does not affect the significance of the ascribed and demographic variables that are significant in previous models. The age and CMA variables continue to be highly significant predictors of the likelihood of a skill level match. While the negative relationship between age and skill level match supports this research hypothesis based on the assumptions of age discrimination, the finding regarding the negative effect of living in a major CMA continues to counter my original hypothesis regarding this variable. The significance and magnitude of the effects of the regions of origin also remain unchanged with the addition of occupational characteristics in the model. Immigrants from Africa, Asia, and the Caribbean or Guyana continue to have lower odds of obtaining a skill level match than immigrants from areas of North America. Results regarding the regions of origin continue to support the hypothesis that immigrants who arrive from non-traditional source regions experience less employment success in Canada than those from a traditional source region such as North America.

The two levels of education variables that are significant in Model 4c continue to be statistically significant predictors of the likelihood of obtaining a skill level match in this model. The magnitudes of the effects for both variables are slightly larger when occupational characteristics are accounted for. Immigrants who have a high school diploma or a lower level of education and immigrants with a Master's degree or higher continue to be more likely to obtain a skill level match than those with a Bachelor's degree only (OR=1.86, $p<0.05$ and OR=1.79, $p<0.001$ respectively). These findings again indicate that immigrants who have the lowest and highest levels of education have greater odds of obtaining a job matching the skill level of their intended occupations than immigrants with Bachelor's degrees.

With respect to the remaining human capital factors, both the English and French language proficiency variables remain statistically significant predictors of the likelihood of a skill level match. The previous work experience variable also continues to be a significant variable when occupational characteristics are accounted for. The data show that immigrants who have previous experience in their intended occupations are more likely to obtain a skill level match than those without previous experience (OR=1.32, $p<0.01$). This finding provides further support to this research hypothesis, as well as the assumptions of human capital theory, that those with experience working in their intended occupations have greater employment success in Canada.

A notable change in this model is that the SES of an immigrant's intended occupation is no longer a statistically significant predictor of the likelihood of a skill level match when other occupational characteristics are controlled. This may in part be due to the relationships between the skill level required to practice an occupation (i.e. the dependent variable) and the occupational characteristics related it. Therefore, the SES of immigrants' intended occupations is an important factor in predicting a job match at the unit group, major group, and skill type levels and only ceases to be significant in the skill level model when other occupational characteristics are included.

Some of the occupational variables entered have statistically significant relationships with the likelihood of a skill level match. Of the aptitudes variables, two are significant. The data show that

"Verbal Ability" and "Clerical Perception" are significant predictors of the likelihood that an immigrant will obtain a job matching the skill level of his or her intended occupation. The "Verbal Ability" aptitude has a negative relationship with the likelihood of a skill level match. For every one percentile increase in the "Verbal Ability" required for an immigrant's intended occupation there is a 2% decrease in the odds of him or her obtaining a skill level match (OR=0.98, $p<0.01$). This supports the hypothesis which assumes that the higher the aptitude required for an occupation, the lower one's employment success. However, the "Clerical Perception" variable does not support this hypothesis. The data indicate that as the aptitude required for "Clerical Perception" job tasks for an immigrant's intended occupation increases, the odds of him or her obtaining a skill level match also increases (OR=1.01, $p<0.001$).

Of the complexity variables for working with data, people, and things, only the "Complexity of Working with Things" variable is statistically significant. The data indicate that an increase of one on the scale of complexity for job tasks associated with working with things (i.e. machines, tools, equipment) results in a 6% decrease in an immigrant's odds of obtaining a skill level match (OR=0.94, $p<0.05$). This supports this research hypothesis which anticipates a negative relationship between DPT scores and immigrant employment success. This finding indicates that immigrants who intend to work in occupations that require a high level of skill in working with machines, tools, and equipment (e.g. precision working, setting up machines by installing or adjusting tools) are less likely to obtain a skill level match than immigrants whose intended occupations require only low levels of complexity when working with things (e.g. handling objects, feeding machines).

Summary

Chapter Seven begins with a presentation of descriptive data that show how many immigrants in the sample obtain employment that matches their intended occupations within their first two years in Canada. The descriptive findings indicate that very few immigrants are able to obtain job matches at the unit group level. However, the broader the occupational classification categories are, the more success immigrants have in obtaining a job match. The descriptive data provided in this chapter also

indicate that, of the five most frequently stated intended occupations, the occupation in which the greatest percentage of immigrants obtain a job match is as computer programmers and interactive media developers (Table 7.2). The data in Table 7.3 also indicate that many immigrants who are unable to obtain a job matching their intended occupations obtain employment in this occupation. However, despite the fact that the vast majority of immigrants in the sample have Bachelor's degrees or higher, about 6% of immigrants without a job match are also employed in sales and service occupations associated with low skill levels.

This chapter also presents the results from four logistic regression models that test the effects of various factors on the likelihood that an immigrant will obtain a job that matches the unit group, major group, skill type or skill level of his or her intended occupation. While the significance of some of the factors varies when different occupational classifications are used to determine a job match, there are some variables that are significant to all models, signifying robust patterns in obtaining a job match. Because the different levels of classification are related, it is expected that the results will be similar in some respects; however, they also provide information about diverse aspects of obtaining a job match. Of the ascribed and demographic variables, age and whether or not an immigrant lives in a major CMA have statistically significant relationships with all four job match variables. Sex is largely non-significant across the models; however, immigrant men are more likely to obtain job matches at the major group level than immigrant women. The variables that test regions of origin and immigrant admission class have different relationships with the four dependent variables and their significance often changes with the addition of human capital factors and occupational characteristics. However, a relatively frequent result among the region of origin variables is that immigrants from some non-traditional source regions such as Africa and the Caribbean or Guyana are less likely to obtain job matches at various levels of occupational classification when compared to immigrants who arrive from areas of North America.

Among the human capital factors, an immigrant's ability to speak English or French and whether or not an immigrant has worked in his or her intended occupation prior to immigration have

significant relationships with job match across all four models. In addition, the education findings generally suggest that immigrants with Bachelor's degrees are less likely to obtain job matches than those with higher or lower levels of education. The effects of the occupational characteristics are the most varied between the four different dependent variables. Of the aptitude variables, only "Clerical Perception" has a statistically significant and positive relationship with all four of the job match variables. The DPT variables are only significant in the two models that look at different elements of skill. Thus, any general patterns regarding the effects of these occupational characteristics cannot be derived from these results. The SES score of an immigrant's intended occupation is found to be a significant predictor of the likelihood of a job match in all models and has a negative relationship with the dependent variables. The total number of jobs an immigrant has held since immigrating only has a statistically significant relationship with the likelihood of a skill type match. Further elaboration on the contribution that these findings make to understanding the occupational attainment of immigrants to Canada can be found in the "Discussion of Findings" chapter (Chapter Eleven).

Chapter Eight

Results of Event History Analysis Models

The following data represent the results of four separate event history analyses. These analyses determine whether ascribed and demographic factors, human capital indicators, the socio-economic status score of an immigrant's intended occupation, and occupational characteristics of one's intended occupation have an influence on the rate at which an immigrant obtains employment in Canada that matches his or her intended occupation. Each event history analysis model accounts for the length of time between an immigrant's time of arrival and the point at which a job match is obtained at each occupational "level". Thus, time is measured as the number of days since immigration. The results are interpreted in terms of the rate at which a job match is obtained. The dependent variables represent the rate at which an immigrant obtains a unit group (Model 5), major group (Model 6), skill type (Model 7), or skill level (Model 8) job match.

The Stata software program determines the dependent variable through the use of a variable representing the number of days until a job match occurs and a dichotomous indicator variable that identifies whether or not a job match occurred within the observed period (i.e. over two years since arrival in Canada). Immigrants who do not obtain a job match within the observed period are treated as right-censored cases. The Cox proportional hazards model is used for these analyses. This model can account for those cases where respondents have not yet found a job match. These cases are considered "right censored" and are included in the analysis. The respondents in the sub-sample examined are not considered left-censored because they were interviewed within six months of their arrival in Canada and any information about their employment history between their arrival and their first interview was collected retrospectively. However, there are a number of individuals not represented in this sample due to attrition between Wave One and Wave Two of the LSIC. This loss of individuals should be accounted for when interpreting the results of the event history models as many of these cases may represent individuals who migrated out of Canada due to problems in obtaining employment in their intended occupations and other settlement issues. While an analysis of those individuals lost to

attrition is not presented here, it is acknowledged that the loss of these cases may influence the results, particularly with respect to a loss of right-censored cases. Further explanation of censored data and the Cox model can be found in the Methodology chapter (Chapter Five).

There are four time-varying covariates in these models: age, whether or not an immigrant lives in a major CMA, English language proficiency, and French language proficiency. Because there are two waves of the LSIC used for these analyses, each of these variables has two values. Changes in these values are accounted for by the Cox proportional hazards model. Although level of education may have changed over time, these models assess only the level of education obtained outside of Canada in an attempt to determine the effect of foreign education on the employment success of immigrants to Canada. All other variables included in these models are constant, as they represent ascribed characteristics (e.g. sex, visible minority status, region of origin), previous work experience, and characteristics of an immigrant's intended occupation. This chapter begins with a brief descriptive analysis of the four dependent variables in order to provide a picture of the variation of the length of time it takes one to obtain a job match between the different levels of occupational classification that are examined. In addition, the amount of time until a job match will be depicted by more general categories (i.e. groups of months) in order to illustrate the general trend in the amount of time that passed before respondents found job matches. The months used to illustrate this trend in Figure 8.1 are grouped to avoid disclosure issues related to small counts for some months.

Following the descriptive information, the results of the four event history models are discussed in reference to the four sets of predictors tested. Each set of variables are discussed in turn, indicating how each group of added variables affects the models. Interpretation of the estimates obtained by the Cox proportional hazards model concentrates on the hazard ratios of each variable. The hazard ratio statistics represent whether an explanatory variable increases or decreases the "risk" of an immigrant obtaining a job match. A hazard ratio of less than one denotes a variable that decreases the risk; therefore, an increase in the value of this variable results in a lower "hazard" of a job match. In other terms, one may interpret the decrease in the hazard ratio of such a variable as indicating that

higher values on this characteristic result in a longer amount of time until a job match occurs (or a slower rate) (Box-Steffensmeier and Jones, 2005). For example, a dichotomous independent variable for which the hazard ratio is less than one indicates that those who represent the characteristic coded as "1" have a lower hazard rate; that is, these individuals will take longer to obtain a job match than those who are coded "0". Conversely, a hazard ratio larger than one would indicate that those coded as "1" are predicted to obtain a job match at a faster rate than those coded as "0". A general discussion of the shape of the hazard function for these models is also presented following the discussion of the event history models. The chapter concludes with a brief summary of the event history models and a discussion of what these data contribute to the knowledge of the employment of immigrants in Canada. This chapter discusses only the results of each model. Further analysis of these findings are addressed in the "Discussion of Findings" chapter (Chapter Eleven).

Descriptive Data for Dependent Variables

The following table (Table 8.1) represents descriptive information indicating the number of days since arrival in Canada that it took immigrants in the sample to obtain job matches at four levels of occupational classification. These data show the average number of days until a job match occurred; therefore, only those immigrants who obtained a job match are included in the descriptive data presented. Consequently, the sample size for each group of data varies according to the number of respondents with a job match at each level of occupational classification. This must be kept in mind when interpreting the data below. In addition, it should be noted that the different levels of occupational classification are related, with the "unit group" level indicating the most specific classification category.

When examining the means for each level of job match, it appears as though, on average, immigrants obtain a unit group job match more quickly than they obtain a match for other types of occupational groupings. However, because this group also contains the fewest number of respondents, the results are likely affected by this. Accounting for all four levels of job match, the means indicate that, among those respondents who obtain a job match in their first two years in Canada, the average

Table 8.1: Descriptive Data for the Length of Time until a Job Match Occurs

	Number of Days until Job Match: Unit Group Level	Number of Days until Job Match: Major Group Level	Number of Days until Job Match: Skill Type	Number of Days until Job Match: Skill Level *
Mean	180.6	198.4	197.6	200.2
Median	98	114	118	119
Mode	1	1	1	1
Standard Deviation	213.1	219.2	211.3	219.1
Sample Size (N)	565	1,006	1,436	1,345

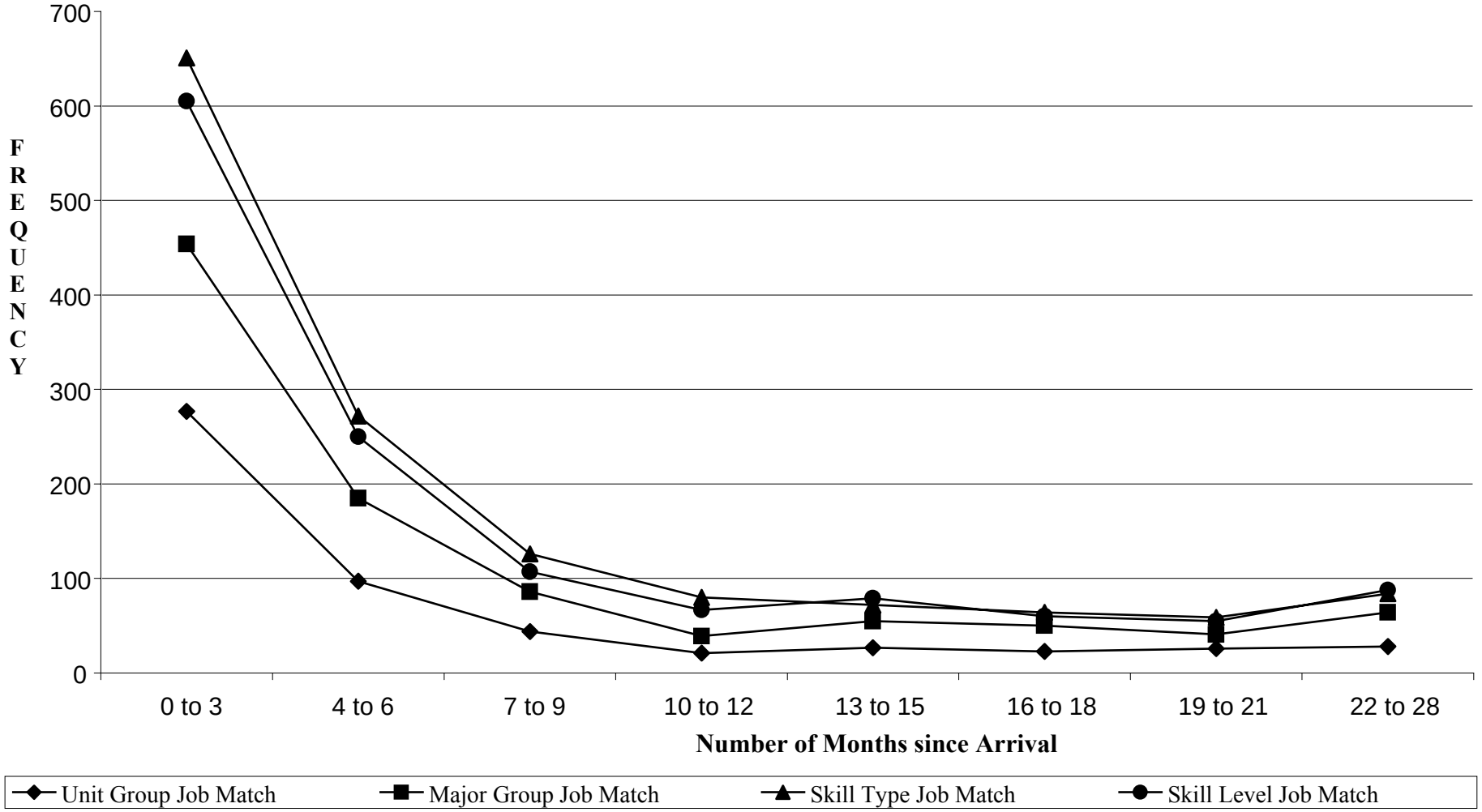
***** Individuals whose intended occupation is a managerial job are excluded from the "Skill Level" group because there is no skill level associated with managerial jobs in the NOC.

respondent obtains some type of job match within their first seven months in Canada. The median number of days since immigration until a job match occurs is lower than the average for all occupational classification levels, indicating that the data are positively skewed. Therefore, the average is likely affected by some high values of the number of days until a job match occurs (Knoke et al., 2002). There is not a broad range between the average number of days since arrival that a job match occurs (between 180 and 200 days).

Of the remaining descriptive statistics, the most revealing is likely the mode score. For each level of job match, the mode is "1", indicating that, of those who obtained a job match within their first two years in Canada, the most frequent time at which they start working in their intended occupation is upon arrival. This may indicate that immigrants with the most success in obtaining a job match are those who have employment already in place when they arrive. However, the mode may also be misleading since the remaining days at which a job match occurs are likely to be more widely distributed among the first few months since arrival.

Additional descriptive information can be found in Figure 8.1 which illustrates the number of immigrants who obtained unit group, major group, skill type, and skill level job matches, broken down by months. Generally, these data show two things. First, more immigrants obtain skill type and skill level matches within their first three months in Canada than major group and unit group job matches. This, in part, is a result of the specificity of classification within the NOC (i.e. skill level is a broader classification than unit group). That is, more job matches occur when the level of a job match is more broadly defined. In addition, among all job match levels, immigrants who do obtain job matches obtain them during their first few months in Canada. Job matches appear to be at their lowest around one year after arrival. The trajectory of job matches over time is discussed with respect to the hazard functions of the event history models at the end of this chapter.

FIGURE 8.1: NUMBER OF MONTHS UNTIL JOB MATCH



Model 5: Event History Analysis for Unit Group Job Match

The following section represents results from the event history analysis in which the hazard rate of obtaining a unit group job match is predicted. Four sub-sections are presented that examine the effects of ascribed and demographic characteristics (Model 5a), human capital factors (Model 5b), the socio-economic status (SES) scores of immigrants' intended occupations (Model 5c), and other occupational characteristics (Model 5d). Details of these results can be found in Table 8.2.

Model 5a: Effects of Ascribed and Demographic Factors on the Hazard Rate of a Unit Group Job Match

The data in the first model represent the influence that ascribed and demographic factors have on the hazard rate of obtaining a unit group job match. Age, visible minority status, and whether or not one lives in a major Census Metropolitan Area (i.e. Toronto, Montreal, or Vancouver) are all found to be statistically significant; however, sex does not have a significant effect on the hazard rate of obtaining a job match. The results indicate that for each one year increase in age, there is a 2% decrease in the hazard of obtaining a job match (HR[12]$=0.98$, $p<0.01$). This supports the hypothesis regarding the effect of age, indicating that older immigrants take longer than younger immigrants to obtain a job match at the unit group level within their first two years in Canada. The data also indicate that visible minority immigrants obtain job matches at a slower rate than non-visible minority immigrants. Therefore, obtaining a job match is a longer process for visible minority immigrants than for non-visible minority immigrants, confirming the hypothesis that visible minority immigrants experience less employment success than non-visible minority immigrants.

The CMA variable also has a fairly large effect on the hazard rate of obtaining a unit group job match. Living in one of Canada's major CMAs decreases the hazard rate of a job match by 37% compared to those not living in a major CMA ($HR=0.63$, $p<0.001$). While my initial hypothesis anticipates that immigrants who live in a major CMA experience greater employment success than

[12] HR = Hazard Ratio

TABLE 8.2: MODEL 5 –Event History Analysis for Rate at which Unit Group Job Match Occurs

	Model 5a			Model 5b			Model 5c			Model 5d		
	β	HR	SE	β	HR	SE	β	HR	SE	β	HR	SE
Sex	-0.018	0.98	0.100	0.104	1.11	0.103	0.135	1.14	0.104	0.125	1.13	0.114
Age	-0.020**	0.98	0.007	-0.018*	0.98	0.007	-0.170*	0.98	0.007	-0.013	0.99	0.007
Visible Minority Status	-0.462*	0.63	0.180	-0.474**	0.62	0.173	-0.501**	0.61	0.172	-0.489**	0.61	0.172
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.402***	0.67	0.095	-0.325**	0.72	0.994	-0.341**	0.71	0.100	-0.362***	0.70	0.101
Region of Origin (North America=Reference Category)												
Africa	-0.591	0.55	0.342	-0.616	0.54	0.344	-0.635	0.53	0.343	-0.653	0.52	0.334
Asia	-0.652	0.52	0.351	-0.415	0.66	0.344	-0.458	0.63	0.345	-0.475	0.62	0.337
Caribbean or Guyana	-0.756	0.47	0.412	-0.868*	0.42	0.413	-0.963*	0.38	0.416	-0.978*	0.38	0.411
Europe	-0.755*	0.47	0.302	-0.551	0.58	0.304	-0.616*	0.54	0.307	-0.614*	0.54	0.299
Middle East	-0.691	0.50	0.421	-0.530	0.59	0.423	-0.604	0.55	0.425	-0.699	0.50	0.427
Oceania	-0.771	0.46	0.589	-0.786	0.46	0.567	-0.876	0.42	0.571	-1.034	0.35	0.562
South or Central America	-0.345	0.71	0.367	0.037	1.04	0.362	0.003	1.00	0.360	-0.054	0.95	0.353
Admission Class (Skilled Worker=Reference Category)												
Business	0.478	1.61	0.256	0.498	1.65	0.309	0.298	1.35	0.320	0.288	1.33	0.334
Family	-0.113	0.89	0.203	-0.253	0.78	0.217	-0.364	0.69	0.223	-0.279	0.76	0.222
Provincial Nominee	0.539	1.71	0.340	0.258	1.29	0.397	0.200	1.22	0.378	0.301	1.35	0.395
Refugee or Other	-1.662*	0.19	0.720	-1.243	0.29	0.752	-1.368	0.25	0.752	-1.332	0.26	0.756
Level of Education (Bachelor's Degree= Reference Category)												
High School or Lower	—	—	—	0.646**	1.91	0.240	0.393	1.48	0.252	0.428	1.53	0.261
Some Trade School, College, or University	—	—	—	0.287	1.03	0.201	-0.110	0.90	0.202	-0.120	0.89	0.205
Trade School or College Complete	—	—	—	0.366*	1.44	0.147	0.172	1.19	0.156	0.164	1.18	0.161
Master's Degree or Higher	—	—	—	0.120	1.13	0.103	0.172	1.19	0.103	0.132	1.14	0.106

TABLE 8.2 Continued

	Model 5a			Model 5b			Model 5c			Model 5d		
	β	HR	SE	β	HR	SE	β	HR	SE	β	HR	SE
Language Proficiency												
English	—	—	—	0.018***	1.02	0.002	0.017***	1.02	0.002	0.018***	1.02	0.003
French	—	—	—	0.102***	1.01	0.018	0.009***	1.01	0.002	0.010***	1 .01	0.002
Previous Experience	—	—	—	1.237***	3.45	0.919	1.264***	3.54	0.092	1.251***	3.49	0.095
SES of Intended Occupation	—	—	—	—	—	—	-0.133***	0.88	0.036	-0.265***	0.77	0.064
Aptitudes for Intended Occupation												
Verbal Ability	—	—	—	—	—	—	—	—	—	0.006	1.01	0.005
Numerical Ability	—	—	—	—	—	—	—	—	—	0.005	1.01	0.003
Spatial Perception	—	—	—	—	—	—	—	—	—	0.003	1.00	0.003
Form Perception	—	—	—	—	—	—	—	—	—	0.006	1.01	0.004
Clerical Perception	—	—	—	—	—	—	—	—	—	0.003	1.00	0.002
Motor Co-ordination	—	—	—	—	—	—	—	—	—	0.002	1.00	0.007
Finger Dexterity	—	—	—	—	—	—	—	—	—	-0.004	1.00	0.006
Manual Dexterity	—	—	—	—	—	—	—	—	—	0.001	1.00	0.007
D.P.T. Scores for Intended Occupation												
Data/Information	—	—	—	—	—	—	—	—	—	-0.081	0.92	0.060
People	—	—	—	—	—	—	—	—	—	0.066	1.07	0.034
Things	—	—	—	—	—	—	—	—	—	-0.029	0.97	0.024
Number of Jobs Held Since Immigrating	—	—	—	—	—	—	—	—	—	-0.105*	0.90	0.045

Notes:
Dependent Variable: Hazard Rate of Obtaining Job Match for Unit Group (represents rate at which job match obtained)
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and had at least one job since immigrating
β = Coefficient; HR = Hazard Ratio; SE = Robust Standard Error (based on non-exponentiated coefficient)
Sample Size: N=2,985; Model 5a: n=2,966; Model 5b: n=2,929 ; Model 5c: n=2,929; Model 5d: n=2,929
Number of Censored Cases in final model: 2,392 (Model 5d)
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001

those who do not, these data suggest that obtaining a job match at the unit group level is a longer process for immigrants who live in a major CMA than for those who live elsewhere

Only one region of origin has a statistically significant relationship with the hazard rate of obtaining a job match at the unit group level. The results indicate that European immigrants obtain unit group job matches at a slower rate than North American immigrants (HR=0.47, $p<0.05$). While this result does not necessarily counter my original hypothesis which assumes that immigrants from traditional source regions experience greater employment success, it does indicate that immigrants from certain traditional source regions have greater success than others. That is, although Europe is typically considered a traditional source region for immigrants to Canada, North American immigrants appear to have greater employment success. This may be due to the fact that newer European immigrants tend to arrive from different areas of Europe than in the past. One of the immigrant admission class variables also has a significant influence on the hazard rate of obtaining a unit group job match in Model 5a. The data indicate that individuals who immigrate under the "Refugee or Other" class obtain job matches at a slower rate than those who immigrate under the "Skilled Worker" class (HR=0.19, $p<0.05$). This result supports the hypothesis regarding immigrant admission class: immigrants who arrive under the "Skilled Worker" class have greater employment success than those who arrive under the "Refugee" class.

Model 5b: Effects of Human Capital Factors on the Hazard Rate of a Unit Group Job Match

The addition of human capital factors does not affect the statistical significance of the age, visible minority status, or CMA variables. The hazard ratio for age remains the same, indicating that even when accounting for human capital factors older immigrants continue to obtain job matches at a slower rate than younger immigrants (HR=0.98, $p<0.05$). Visible minority status also remains statistically significant with the addition of the human capital variables. The data indicate that being a visible minority decreases the hazard of a job match by 38% compared to being a non-visible minority, even when human capital factors are controlled (HR=0.62, $p<0.001$). This lends further support to the hypothesis that visible minority immigrants experience less employment success than non-visible

minority immigrants. In addition, when education, official language proficiency, and previous work experience are controlled, the effect of living in a major CMA is lessened (although still significant) (HR=0.72, $p<0.01$). Again, this finding counters my original hypothesis, indicating that immigrants who live in a major CMA experience less employment success than those living elsewhere.

The inclusion of human capital variables changes the significance of the region of origin variables and the admission class variables. The "Europe" variable is no longer a significant variable; however, the "Caribbean or Guyana" variable becomes a statistically significant predictor when variations in human capital variables are controlled. Immigrants who arrive from the Caribbean or Guyana obtain job matches at a slower rate than immigrants from North America (HR=0.42, $p<0.05$). These results indicate that, when factors such as education, language proficiency, and previous work experience are controlled, immigrants from Europe are no longer at a disadvantage in obtaining a job match compared to immigrants from North America. With the addition of human capital variables, the "Refugee or Other" admission class variable is no longer statistically significant. Therefore, when these factors are taken into account, being in the "Refugee or Other" admission class does not affect the rate at which an immigrant in this category obtains a unit group job match compared to individuals in the "Skilled Worker" category.

The majority of the human capital variables have statistically significant relationships with the hazard rate of obtaining a job match at the unit group level. Of the education variables, having a high school diploma or lower or having completed trade school or college has a positive relationship with the hazard rate of obtaining a job match. An immigrant with a high school diploma or lower is predicted to obtain a job match more quickly than those with a Bachelor's degree (HR=1.91, $p<0.01$). Similarly, immigrants who are trade school or college graduates are predicted to obtain a job match at a faster rate than immigrants with Bachelor's degrees (HR=1.44, $p<0.05$). These results support the hypothesis which assumes that immigrants with lower levels of education will experience greater employment success than those with higher levels of education.

Language proficiency in English or French also affects the hazard rate of obtaining a job match at the unit group level. A one unit increase in an immigrant's English language proficiency score increases the hazard rate by 2% (HR=1.02; $p<0.001$). Therefore the process of obtaining a job match is faster for immigrants with a high proficiency in English than for those with lower levels of English language proficiency. Also, those with a higher level of French language proficiency find work in their intended occupations more quickly (HR=1.01; $p<0.001$). These results support the hypothesis that immigrants with high levels of proficiency in English or French experience greater employment success than those with low levels of proficiency in these languages.

The last human capital factor entered, previous work experience, indicates that immigrants who work in their intended occupations prior to immigrating have a hazard rate of obtaining a unit group job match that is more than three times greater than those without previous work experience (HR=3.45, $p<0.001$). Therefore, immigrants without previous work experience in their intended occupations take much longer to obtain a job match than those who have this type of work experience. Again, this result supports my original hypothesis which assumes that immigrants with previous experience in their intended occupations experience greater employment success in Canada than those without previous experience.

Model 5c: Effect of the SES of Intended Occupation on the Hazard Rate of a Unit Group Job Match

The addition of the socio-economic status (SES) variable affects the statistical significance of some variables in the model. Age remains a significant predictor of the hazard rate of a job match at the unit group level, supporting the hypothesis that older immigrants experience less employment success than younger immigrants (HR=0.98, $p<0.05$). Likewise, visible minority status continues to be a strong indicator of job match. The rate at which visible minority immigrants obtain a job match is slower than the rate at which non-visible minority immigrants obtain a job match when the SES of intended occupation is controlled (HR=0.61, $p<0.01$). Whether or not an immigrant lives in a major CMA also maintains a high level of statistical significance with the inclusion of the SES variable; immigrants in major CMAs obtain unit group job matches at a slower rate than immigrants living elsewhere

(HR=0.71, p<0.001). This further counters the hypothesis that immigrants who live in a major CMA experience greater employment success than immigrants who live elsewhere in Canada.

The regions of origin variables that are statistically significant are slightly different with the addition of the SES variable. Being an immigrant from the Caribbean or Guyana still has a statistically significant relationship with the hazard rate of a job match at the unit group level, although the effect of this is slightly greater than in Model 5b (HR=0.38, p<0.05). In Model 5c, the "Europe" region of origin variable regains statistical significance, indicating that when SES of intended occupation is controlled, European immigrants obtain job matches at a slower rate than North American immigrants (HR=0.54, p<0.05).

There are some changes in the statistical significance of human capital factors with the addition of the SES variable. None of the education variables maintain or gain statistical significance; however, two education variables lose statistical significance in this model. Both the "High School Diploma or Lower" and "Trade School or College Complete" education variables are no longer significant when predicting the hazard rate of a unit group job match in Model 5c. Therefore, when the SES of an immigrant's intended occupation is controlled, his or her level of education is no longer a predictor in the hazard rate of obtaining a job match at the unit group level. However, because the SES of one's intended occupation in part implies his or her level of education, there is some redundancy in this finding. The other human capital variables maintain a high level of statistical significance. In particular, an increase in an immigrant's English or French language proficiency still increases the hazard rate of obtaining a job when the effects of the SES of immigrants' intended occupations are controlled. Previous work experience in one's intended occupation also maintains a high level of statistical significance. When the SES of an immigrant's intended occupation is added to the model, those with previous experience obtain a job match three and a half times more quickly than those without previous experience in their intended occupations (HR=3.54, p<0.001).

The SES of immigrants' intended occupations also has a significant effect on the hazard rate of obtaining a unit group job match. When included in the model, the SES of intended occupation has a

negative relationship with the hazard rate. For every one unit increase in the SES of an immigrant's intended occupation, the hazard rate of obtaining a job match is predicted to decrease by 22% (HR=0.88, $p<0.001$). Therefore, immigrants who intend to work in occupations with high SES scores take longer to obtain a job match than immigrants who seek jobs with low SES scores. Again, this mirrors the results from the education variables and lends further support to the hypothesis which anticipates a negative relationship between the SES of an immigrant's intended occupation and his or her employment success in Canada.

Model 5d: Effects of Occupational Characteristics on the Hazard Rate of a Unit Group Job Match

The addition of the occupational characteristics changes the statistical significance of very few variables. In relation to the ascribed and demographic variables, the results indicate that age is no longer a significant predictor of the hazard rate of obtaining a unit group job match when occupational characteristics are controlled. This is an indication that occupational characteristics vary with age. Both the visible minority status variable and the CMA variable maintain their statistical significance. Thus, visible minorities are still found to obtain unit group job matches at a slower rate than non-visible minorities, lending further support to my initial hypothesis. However, the hypothesis regarding the CMA variable continues to be countered.

The human capital variables remain non-significant with the addition of the occupational characteristics. However, proficiency in Canada's official languages and previous work experience are highly significant predictors. The magnitudes of the effects of English and French language proficiency are the same as in Models 5b and 5c. When occupational characteristics are controlled, immigrants with previous work experience still obtain a job match at a rate that is about three and a half times faster than those without previous experience in their intended occupations (HR=3.49, $p<0.001$).

The SES of intended occupations maintains a high level of statistical significance in this model. The results indicate that, even with the addition of other occupational characteristics, the SES of an immigrant's intended occupation has a significant and negative relationship with the hazard rate

of obtaining a job match at the unit group level. Therefore an immigrant whose intended occupation has a high SES score will take longer to obtain employment in his or her intended occupation than an immigrant whose intended occupation has a low SES score (HR=0.77, $p<0.001$). This finding is in accordance with my original hypothesis that immigrants seeking high-status occupations experience less employment success in Canada than those seeking occupations of lower status.

The variables representing aptitudes for immigrants' intended occupations are not statistically significant in Model 5d. Likewise, the variables measuring the complexity of working with data, people, or things are not found to be significant predictors of the hazard rate of obtaining a job match at the unit group level. These results indicate that the aptitudes and complexity of working with data or information, people, and things do not affect the rate at which immigrants obtain jobs that match their intended occupations at the unit group level. These findings may also indicate that the effects of occupational characteristics are in some ways related to variables already in the model and thus already accounted for (e.g. SES, education). Lastly, the exploratory variable "Number of Jobs Held Since Immigrating" has a statistically significant and negative relationship with the hazard rate of obtaining a unit group job match. For each additional job an immigrant holds, the longer it will take him or her to obtain a job match at the unit group level (HR=0.90, $p<0.05$). This finding suggests that holding one or more "survival jobs" may be detrimental to the employment success of immigrants in Canada.

Model 6: Event History Analysis for Major Group Job Match

The following sections present results from the Cox proportional hazards models which examine predictors of the hazard rate of obtaining a major group job match. The discussion is divided into four sections to address the effects of different sets of variables that are entered successively into the model. The first section examines the effects of ascribed and demographic factors (Model 6a), followed by a discussion of the effects of human capital factors (Model 6b), the SES of an immigrant's intended occupation (Model 6c), and other occupational characteristics (Model 7d). The coefficients, hazard ratios, significance levels, and standard errors can be found in Table 8.3.

Model 6a: Effects of Ascribed and Demographic Factors on the Hazard Rate of a Major Group Match

The results from this model indicate that several ascribed and demographic characteristics affect the rate at which an immigrant obtains a major group match. Similar to Model 5a, ascribed and demographic factors such as age, visible minority status, and whether or not an immigrant lives in a major CMA are significant when determining the hazard rate of obtaining a job match at the major group level. Unlike the unit group model, the data indicate that sex is a statistically significant predictor of the hazard rate of obtaining employment in one's intended occupation at the major group level.

There continues to be a negative and highly significant relationship between age and the hazard rate of obtaining a job match. Thus, older immigrants obtain major group job matches at a slower rate than younger immigrants (HR=0.97, $p<0.001$). The data also show that visible minority immigrants obtain job matches at a slower rate than non-visible minority immigrants (HR=0.65, $p<0.01$). While the results for age and visible minority status continue to support my original hypotheses of immigrant employment success, the result regarding the CMA variable also continues to counter my anticipated findings. The data show that it takes longer for immigrants who live in a major CMA to obtain a job match at the major group level than immigrants who live elsewhere in Canada. In addition, immigrant men obtain job matches at the major group level at a faster rate than immigrant women (HR=1.17, $p<0.05$). This supports my original hypothesis that female immigrants experience less employment success than male immigrants.

The results also indicate that immigrants who arrive in Canada from many different regions of the world take longer to obtain a job match at the major group level compared to immigrants who arrive from other areas of North America. Immigrants who arrive from Africa, Asia, the Caribbean or Guyana, and Europe obtain job matches at a slower rate than immigrants from North America (HR=0.51, $p<0.05$; HR=0.49, $p<0.05$; HR=0.51, $p<0.05$ and HR=0.49, $p<0.01$ respectively). Those who arrive from South or Central America also take longer to obtain job matches at the major group

TABLE 8.3: MODEL 6 –Event History Analysis for Rate at which Major Group Job Match Occurs

	Model 6a			Model 6b			Model 6c			Model 6d		
	β	HR	SE	β	HR	SE	β	HR	SE	β	HR	SE
Sex	0.158*	1.17	0.090	0.222**	1.25	0.079	0.237**	1.27	0.080	0.215*	1.24	0.085
Age	-0.031***	0.97	0.005	-0.031***	0.97	0.005	-0.031***	0.97	0.005	-0.027***	0.97	0.005
Visible Minority Status	-0.425**	0.65	0.137	-0.403***	0.67	0.133	-0.413**	0.66	0.133	-0.412**	0.66	0.135
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.383***	0.68	0.072	-0.304***	0.74	0.076	-0.311***	0.73	0.076	-0.320***	0.73	0.076
Region of Origin (North America=Reference Category)												
Africa	-0.670*	0.51	0.282	-0.616*	0.54	0.283	-0.622*	0.54	0.285	-0.705*	0.49	0.279
Asia	-0.719*	0.49	0.284	-0.526	0.59	0.281	-0.536	0.58	0.283	-0.627*	0.53	0.277
Caribbean or Guyana	-0.671*	0.51	0.326	-0.700*	0.50	0.328	-0.727*	0.48	0.330	-0.803*	0.45	0.327
Europe	-0.707**	0.49	0.257	-0.504*	0.60	0.256	-0.525*	0.59	0.258	-0.605*	0.55	0.251
Middle East	-0.628	0.53	0.332	-0537	0.58	0.333	-0.555	0.57	0.334	-0.752*	0.47	0.337
Oceania	-0.703	0.49	0.478	-0.679	0.51	0.464	-0.713	0.49	0.463	-0.820	0.44	0.451
South or Central America	-0.656*	0.52	0.307	-0.342	0.71	0.308	-0.346	0.71	0.309	-0.429	0.65	0.306
Admission Class (Skilled Worker=Reference Category)												
Business	0.162	1.18	0.222	0.269	1.31	0.226	0.193	1.21	0.227	0.245	1.28	0.238
Family	-0.018	0.98	0.157	-0.062	0.94	0.166	-0.110	0.90	0.169	-0.054	0.95	0.168
Provincial Nominee	0.221	1.25	0.292	0.223	1.02	0.319	-0.012	0.99	0.313	0.068	1.07	0.332
Refugee or Other	-0.753	0.47	0.387	-0.416	0.66	0.415	-0.464	0.63	0.412	-0.330	0.72	0.422
Level of Education (Bachelor's Degree= Reference Category)												
High School or Lower	—	—	—	0.563**	1.76	0.167	0.444*	1.56	0.176	0.497**	1.64	0.179
Some Trade School, College, or University	—	—	—	-0.050	0.95	0.162	-0.118	0.89	0.164	-0.108	0.90	0.166
Trade School or College Complete	—	—	—	0.327**	1.39	0.112	0.243*	1.27	0.118	0.263*	1.30	0.120
Master's Degree or Higher	—	—	—	0.235**	1.26	0.078	0.258**	1.29	0.078	0.286***	1.33	0.079

TABLE 8.3 Continued

	Model 6a			Model 6b			Model 6c			Model 6d		
	β	HR	SE	β	HR	SE	β	HR	SE	β	HR	SE
Language Proficiency												
English	—	—	—	0.015***	1.02	0.002	0.015***	1.02	0.002	0.016***	1.02	0.002
French	—	—	—	0.006***	1.01	0.001	0.006***	1.01	0.001	0.007***	1.01	0.001
Previous Experience	—	—	—	0.499***	1.65	0.068	0.515***	1.67	0.068	0.492***	1.63	0.070
SES of Intended Occupation	—	—	—	—	—	—	-0.062*	0.94	0.027	-0.186***	0.83	0.051
Aptitudes for Intended Occupation												
Verbal Ability	—	—	—	—	—	—	—	—	—	-0.002	1.00	0.004
Numerical Ability	—	—	—	—	—	—	—	—	—	0.010***	1.01	0.003
Spatial Perception	—	—	—	—	—	—	—	—	—	0.005	1.01	0.002
Form Perception	—	—	—	—	—	—	—	—	—	0.001	1.00	0.003
Clerical Perception	—	—	—	—	—	—	—	—	—	0.003*	1.003	0.001
Motor Co-ordination	—	—	—	—	—	—	—	—	—	-0.001	1.00	0.005
Finger Dexterity	—	—	—	—	—	—	—	—	—	0.002	1.00	0.005
Manual Dexterity	—	—	—	—	—	—	—	—	—	-0.004	1.00	0.005
D.P.T. Scores for Intended Occupation												
Data/Information	—	—	—	—	—	—	—	—	—	-0.048	0.95	0.049
People	—	—	—	—	—	—	—	—	—	0.040	1.04	0.028
Things	—	—	—	—	—	—	—	—	—	0.004	1.00	0.019
Number of Jobs Held Since Immigrating	—	—	—	—	—	—	—	—	—	-0.051	0.95	0.035

Notes:
Dependent Variable: Hazard Rate of Obtaining a Job Match for Major Group (represents the rate at which a job match occurs)
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and had at least one job since immigrating
β = Coefficient; HR = Hazard Ratio; SE = Robust Standard Error (based on non-exponentiated coefficients)
Sample Size: N=2,985; Model 6a: n=2,964; Model 6b: n=2,927 ; Model 6c: n=2,927; Model 6d: n=2,927
Number of Censored Cases: 1,948 in final model (Model 6d)
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001

level than immigrants from North America (HR=0.52, $p<0.05$). These findings generally support my assertion that immigrants who arrive in Canada from a traditional source region such as North America experience greater employment success than those who arrive from non-traditional source regions.

While many of the ascribed and demographic variables have a statistically significant relationship with the "risk" of obtaining a job match at the major group level, the data also indicate that an immigrant's admission class does not influence the rate at which he or she obtains a job match. The fact that none of the admission class variables are significant in this model is contrary to my initial hypothesis that skilled workers experience greater employment success than immigrants in other admission class categories and contrary to the unit group findings discussed above.

Model 6b: Effects of Human Capital Factors on the Hazard Rate of Obtaining a Major Group Job Match

The addition of human capital factors affects the significance of very few variables. Sex, age, visible minority status, and whether or not an immigrant lives in a major CMA remain statistically significant predictors of the hazard rate of obtaining a job match at the major group level. Although the hazard ratios of some of these variables change slightly in this model, they maintain the same relationships with the dependent variable. While most of the ascribed and demographic variables discussed in Model 6a are only slightly affected by the addition of human capital factors, some of the regions of origin variables lose statistical significance in Model 6b. Emigrating from Asia and emigrating from South or Central America are no longer significant predictors of the "risk" of obtaining a job match when human capital factors are included in the model. However, immigrating to Canada from Africa, Europe, or the Caribbean or Guyana still has a negative effect on the rate at which these immigrants obtain a job match compared to immigrants who come from areas of North America.

Many of the human capital variables are also statistically significant predictors of the hazard rate of obtaining a major group job match. Several levels of education have an effect on the hazard rate of a job match when compared to that of Bachelor's degree holders. The data show that immigrants who have a high school diploma or lower and immigrants who have graduated from trade

school or college obtain major group job matches more quickly than immigrants with a Bachelor's degree (HR=1.76, $p<0.01$ and HR=1.39, $p<0.01$ respectively). Similarly, immigrants with a Master's degree or higher obtain major group matches at a faster rate than immigrants with a Bachelor's degree (HR=1.26, $p<0.01$). While the findings for the "High School or Lower" and "Trade School or College Complete" variables support the hypothesis that immigrants with lower levels of education experience greater employment success than those with higher levels of education, the finding that those with a Master's degree obtain job matches more quickly than those with Bachelor's degrees counters this. Further discussion of this issue can be found in Chapter Eleven.

The data also indicate that as an immigrant's proficiency in English or French increases, the hazard rate of obtaining a job match at the major group level increases. Therefore, an immigrant with a high level of proficiency in English or French is predicted to obtain a job match more quickly than those with lower levels of English or French language proficiency, echoing results from the unit group model. These results continue to support the hypothesis which anticipates a positive relationship between official language proficiency and immigrant employment success.

Lastly, and consistent with earlier analyses, an immigrant who works in his or her intended occupation prior to immigrating to Canada is predicted to obtain a major group job match at a faster rate than an immigrant who does not have this type of previous work experience (HR=1.65, $p<0.001$). This supports both the hypothesis of a positive relationship between previous work experience and immigrant employment success and also supports the general tenets of human capital theory.

Model 6c: Effect of the SES of Intended Occupation on the Hazard Rate of a Major Group Job Match

The addition of the SES variable does not change the statistical significance of any of the variables that are statistically significant in the previous models for major group job match. Immigrant men continue to obtain job matches at a significantly faster rate than immigrant women when the SES of their intended occupations is controlled (HR=1.27, $p<0.01$). This finding supports the hypothesis that male immigrants experience greater employment success than female immigrants. Age also continues to be a

highly significant predictor of the hazard rate of a job match in this model; with every one year increase in age, the hazard rate of obtaining a job match decreases by 3% (HR=0.97, $p<0.001$). This further supports the hypothesis that younger immigrants experience greater employment success than older immigrants.

Visible minority status and whether or not an immigrant lives in a major CMA also continue to remain significant indicators of the hazard rate of a job match in Canada. Therefore, even when the SES of intended occupation is included in the model, these factors remain significant predictors of the employment success of immigrants. The results continue to show that visible minority immigrants take longer to obtain a job match than non-visible minority immigrants, lending further support to the hypothesis that visible minority immigrants experience greater difficulties with respect to obtaining employment in their intended occupations. However, findings from the CMA variable continue to conflict with my anticipated findings. The inclusion of the SES of intended occupation variable does not affect the finding that immigrants who live in a major CMA obtain job matches at a slower rate than those who live elsewhere in Canada.

With respect to the region of origin variables, all of the regions that are significant in Model 6b maintain statistical significance when the SES of intended occupation is included in the model. Thus, immigrants who arrive from Africa, the Caribbean or Guyana, or Europe take longer to obtain a major group job match than immigrants who arrive from North American nations. Generally these results continue to support the hypothesis that immigrants from a traditional source region such as North America experience greater employment success than those from less traditional source regions.

Most of the education variables are significant predictors when the SES of intended occupation is controlled. The influences that having a high school diploma or lower and being a trade school or college graduate have on the hazard rate of a job match are smaller in magnitude than in the previous model. This indicates that the impact that some types of education have on obtaining a job match are lessened when one accounts for the SES of an immigrant's intended occupation. Both of these results support my initial hypothesis that immigrants with lower levels of education experience greater

employment success than those with higher levels of education. However, the result from the "Master's Degree or Higher" variable again refutes this general notion of an inverse relationship between level of education and immigrants' success in obtaining a job match. Even when the SES of intended occupation is controlled, immigrants with a Master's degree or higher obtain job matches more quickly than immigrants with a Bachelor's degree only (HR=1.29, $p<0.01$). This continues to suggest that immigrants whose level of education is higher than an undergraduate degree take less time to obtain job matches than Bachelor's degree holders.

The remaining human capital factors represented in this model continue to be highly significant. The English and French language proficiency variables again indicate that an increase in an immigrant's English or French language proficiency score increases the hazard rate of obtaining a job match. This further supports the hypothesis that immigrants with higher levels of language proficiency in one or both of Canada's official languages experience greater employment success in Canada. The "Previous Work Experience" variable also supports my anticipated findings which are based on the principles of human capital theory: immigrants who have work experience in their intended occupations prior to immigrating to Canada have greater employment success than those without previous work experience, even when the SES of intended occupation is included in the model.

The data also continue to indicate that the SES of an immigrant's intended occupation is a statistically significant predictor of the hazard rate of obtaining a job match. The results show that for every one unit increase in the SES score of an immigrant's intended occupation, the hazard rate of obtaining a job match decreases by 6% (HR=0.94, $p<0.05$). Therefore, immigrants who intend to work in occupations with high SES scores obtain job matches at a slower rate than immigrants whose intended occupations have low SES scores. This further supports the hypothesis that there is a negative relationship between the SES of immigrants' intended occupations and their employment success in Canada.

Model 6d: Effects of Occupational Characteristics on the Hazard Rate of a Major Group Job Match

The addition of occupational characteristics results in some of the region of origin variables gaining or regaining statistical significance. In addition, sex, age, visible minority status, and whether or not an immigrant lives in a major CMA all continue to significantly influence the hazard rate of a major group job match. These results continue to support the hypotheses regarding these variables, even when occupational characteristics are controlled. This lends further substantiation to the discrimination thesis that female immigrants, older immigrants, and visible minority immigrants experience more difficulty integrating into the Canadian labour market due to discriminatory practices based on ascribed characteristics. The magnitude of the effect that living in a major CMA has on the hazard rate of obtaining a job match also remains the same in this model. Therefore, even when different characteristics of an immigrant's intended occupation are accounted for, immigrants living in a major CMA obtain job matches at a slower rate than immigrants who live elsewhere in Canada (HR=0.73, $p<0.001$). This result continues to counter the hypothesis that immigrants living in a major CMA experience greater employment success than those who live in other areas of Canada.

As mentioned above, the statistical significances of some of the regions of origin variables change in Model 6d. The effects of immigrating to Canada from Africa, the Caribbean or Guyana, or Europe remain statistically significant. The data show that individuals from these regions obtain major group job matches at a slower rate than immigrants from North America. The addition of occupational characteristics also causes the "Asia" variable to regain statistical significance (it was also significant in Model 6a) and causes the "Middle East" variable to become a statistically significant predictor of the hazard rate of obtaining a job match at the major group level. Again, individuals from Asia and the Middle East take longer to obtain a job match than those from North America (HR=0.53, $p<0.05$ and HR=0.55, $p<0.05$ respectively). Therefore, when occupational characteristics are controlled, being an immigrant from Africa, Asia, the Caribbean or Guyana, Europe, or the Middle East affects the rate at which immigrants obtain job matches compared to individuals from areas of North America. These results support the hypothesis regarding immigrants' regions of origin.

The addition of occupation-related variables does not affect the education variables greatly. All of the education variables remain statistically significant. The data continue to show that immigrants with a high school diploma or less and immigrants who have completed trade school or college programs obtain job matches at a faster rate than immigrants with a Bachelor's degree (HR=1.64, $p<0.001$ and HR=1.30, $p<0.05$ respectively). Again, these results support my original hypothesis that immigrants with lower levels of education experience greater employment success than those with higher-level credentials. However, this general assumption is again countered with the result from the "Master's Degree or Higher" variable. The data in Model 6d continue to indicate that immigrants with a Master's degree or a higher degree obtain job matches more quickly than immigrants with a Bachelor's degree only (HR=1.33, $p<0.001$).

The language proficiency variables also maintain their significant relationships with the hazard rate of obtaining a job match. The data show that as an immigrant's English or French language proficiency increases (based on language scores), the rate at which he or she is predicted to obtain a job match also increases (HR=1.02, $p<0.001$ and HR=1.01, $p<0.001$ respectively). Therefore, my original hypothesis that the higher an immigrant's language proficiency in an official language, the greater employment success he or she experiences is supported.

The previous work experience variable also maintains a high level of statistical significance. The data show that, when occupation-related characteristics are added to the model, immigrants who have worked in their intended occupation prior to immigrating find employment in these occupations more quickly than immigrants without previous work experience (HR=1.63, $p<0.001$). Again, this result indicates that the human capital assumption that relevant work experience positively affects individuals' employment success is applicable to the immigrant population. That is, immigrants with relevant work experience have greater employment success than those without previous experience in their intended occupations.

The addition of occupational factors relating to an immigrant's intended occupation causes the effect of the SES of intended occupation to become larger. The data indicate that for every increase of

one in the SES score of an immigrant's intended occupation, the hazard rate of obtaining a major group job match decreases by 17% (HR=0.83, $p<0.001$). Therefore, when occupational characteristics such as aptitudes and DPT scores are controlled, the SES of an immigrant's intended occupation affects the rate at which he or she immigrant obtains a job match. The fact that the relationship between the SES of intended occupation and the hazard rate of obtaining a job match is an inverse one supports the hypothesis that immigrants pursuing employment in high-status occupations experience more difficulty obtaining job matches than those who seek low-status occupations. Again, this is an indication that the process of social closure affects the economic integration of immigrants in Canada.

Lastly, only two of the occupational characteristics added are statistically significant predictors of the hazard rate of obtaining a major group job match. The data indicate that both the numerical aptitude and the clerical perception required for an immigrant's intended occupation have a significant effect on the predicted hazard rate of a job match. None of the variables related to the complexity of working with data, people, or things are significant in this model, nor is the variable that indicates the number of jobs held since immigrating. The results show that as the aptitude required in numerical ability for an immigrant's intended occupation increases, the rate at which he or she obtains a job match also increases (HR=1.01, $p<0.001$). The effect of the aptitude required in clerical perception is fairly small but also indicates a significant and positive relationship with the hazard rate of obtaining a job match (HR=1.003, $p<0.05$). These results indicate that immigrants whose intended occupations require either a high aptitude in numerical ability or a high level of clerical perception obtain job matches more quickly than those whose intended occupations require low levels of these aptitudes. These results counter my general hypothesis regarding occupational aptitudes which anticipates that the higher the ability required for an aptitude, the less employment success an immigrant experiences.

Model 7: Event History Analysis for Skill Type Job Match

The following sections examine the effects of ascribed and demographic characteristics (Model 7a), human capital factors (Model 7b), the SES of immigrants' intended occupations (Model 7c), and other

occupational characteristics (Model 7d) on the hazard rate of obtaining a skill type match. While only the statistically significant results are discussed, the complete set of results can be found in Table 8.4.

Model 7a: Effects of Ascribed and Demographic Characteristics on the Hazard Rate of a Skill Type Job Match

The data discussed in this section provide an indication of whether various ascribed or demographic factors affect the rate at which immigrants obtain employment in the same industry as their intended occupations. The data show that sex is not a significant predictor of the hazard rate of obtaining a job match at the skill type level of the NOC; however, several other variables entered in this model are significant. Age, visible minority status, and living in a major CMA all have statistically significant and negative relationships with the hazard rate of obtaining a skill type match. As in previous models, older immigrants are found to take longer to obtain a job match at this level of classification than younger immigrants (HR=0.98, $p<0.001$). This continues to support my initial hypothesis that younger immigrants experience greater employment success in Canada than older immigrants. In addition, immigrants who are identified as visible minorities obtain skill type matches at a slower rate than non-visible minority immigrants (HR=0.68, $p<0.01$). These results both support my initial hypotheses with respect to these variables.

The results also show that most of the regions of origin variables are significant predictors of the hazard rate of a skill type match. Individuals who immigrate to Canada from Africa, Asia, the Caribbean or Guyana, Europe, and South or Central America obtain job matches at a slower rate than individuals from North American areas. These results generally support the hypothesis that immigrants from non-traditional source regions experience less employment success than those from a traditional region of origin such as North America. Lastly, the data indicate that only one of the admission class variables is a significant predictor of the hazard rate of obtaining a job match at the skill type level. The results show that immigrants represented in the "Refugee or Other" category obtain skill type job matches at a slower rate than those represented in the "Skilled Worker" category (HR=0.64; $p<0.05$). This finding supports my initial hypothesis that individuals immigrating as skilled

TABLE 8.4: MODEL 7 – Event History Analysis for Rate at which Skill Type Match Occurs

	Model 7a			Model 7b			Model 7c			Model 7d		
	β	HR	SE	β	HR	SE	β	HR	SE	β	HR	SE
Sex	0.030	1.03	0.063	0.079	1.08	0.065	0.101	1.11	0.065	0.159*	1.13	0.070
Age	-0.020***	0.98	0.004	-0.022***	0.98	0.004	-0.021***	0.98	0.004	-0.019***	0.98	0.004
Visible Minority Status	-0.390**	0.68	0.117	-0.377**	0.68	0.119	-0.394**	0.67	0.119	-0.396**	0.67	0.121
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.382***	0.68	0.061	-0.304***	0.74	0.064	-0.314***	0.73	0.064	-0.313***	0.73	0.064
Region of Origin (North America=Reference Category)												
Africa	-0.688**	0.50	0.235	-0.556*	0.57	0.238	-0.583*	0.56	0.239	-0.640**	0.53	0.235
Asia	-0.610*	0.54	0.238	-0.396	0.67	0.239	-0.424	0.65	0.241	-0.476*	0.62	0.237
Caribbean or Guyana	-0.653*	0.52	0.269	-0.666*	0.51	0.276	-0.721*	0.49	0.278	-0.789**	0.45	0.275
Europe	-0.696**	0.50	0.215	-0.433*	0.65	0.215	-0.475*	0.62	0.216	-0.509*	0.60	0.210
Middle East	-0.519	0.59	0.274	-0.433	0.65	0.279	-0.476	0.62	0.280	-0.563*	0.57	0.278
Oceania	-0.475	0.62	0.442	-0.371	0.69	0.417	-0.447	0.64	0.417	-0.535	0.58	0.405
South or Central America	-0.567*	0.57	0.251	-0.234	0.79	0.256	-0.258	0.77	0.257	-0.293	0.75	0.251
Admission Class (Skilled Worker=Reference Category)												
Business	0.326	1.38	0.166	0.428*	1.53	0.182	0.322	1.38	0.188	0.322	1.38	0.193
Family	0.174	1.19	0.125	0.145	1.16	0.132	0.077	1.08	0.135	0.092	1.10	0.134
Provincial Nominee	0.241	1.27	0.258	0.117	1.12	0.271	0.044	1.04	0.269	0.172	1.19	0.278
Refugee or Other	-0.445*	0.64	0.225	-0.089	0.91	0.259	-0.139	0.87	0.249	-0.093	0.91	0.259
Level of Education (Bachelor's Degree= Reference Category)												
High School or Lower	—	—	—	0.461**	1.59	0.145	0.281	1.32	0.155	0.333*	1.40	0.156
Some Trade School, College, or University	—	—	—	-0.081	0.92	0.140	-0.177	0.84	0.143	-0.140	0.87	0.144
Trade School or College Complete	—	—	—	0.341***	1.41	0.093	0.223*	1.25	0.099	0.273	1.31	0.103
Master's Degree or Higher	—	—	—	0.098	1.10	0.066	0.126	1.13	0.066	0.154*	1.17	0.067

TABLE 8.4 Continued

	Model 7a			Model 7b			Model 7c			Model 7d		
	β	HR	SE	β	HR	SE	β	HR	SE	β	HR	SE
Language Proficiency												
English	—	—	—	0.017***	1.02	0.002	0.017***	1.02	0.001	0.017***	1.02	0.002
French	—	—	—	0.005***	1.01	0.001	0.005***	1.01	0.001	0.005***	1.01	0.001
Previous Experience	—	—	—	0.411***	1.51	0.058	0.428***	1.53	0.058	0.404***	1.50	0.059
SES of Intended Occupation	—	—	—	—	—	—	-0.085***	0.92	0.024	-0.107*	0.90	0.043
Aptitudes for Intended Occupation												
Verbal Ability	—	—	—	—	—	—	—	—	—	-0.004	1.00	0.003
Numerical Ability	—	—	—	—	—	—	—	—	—	0.006**	1.01	0.002
Spatial Perception	—	—	—	—	—	—	—	—	—	-0.004*	0.996	0.002
Form Perception	—	—	—	—	—	—	—	—	—	0.007**	1.01	0.002
Clerical Perception	—	—	—	—	—	—	—	—	—	0.003**	1.003	0.001
Motor Co-ordination	—	—	—	—	—	—	—	—	—	0.001	1.00	0.004
Finger Dexterity	—	—	—	—	—	—	—	—	—	0.000	1.00	0.004
Manual Dexterity	—	—	—	—	—	—	—	—	—	-0.012**	0.99	0.004
D.P.T. Scores for Intended Occupation												
Data/Information	—	—	—	—	—	—	—	—	—	-0.110**	0.90	0.039
People	—	—	—	—	—	—	—	—	—	0.048*	1.05	0.022
Things	—	—	—	—	—	—	—	—	—	0.030	1.03	0.015
Number of Jobs Held Since Immigrating	—	—	—	—	—	—	—	—	—	0.001	1.00	0.028

Notes:
Dependent Variable: Hazard Rate of Obtaining a Job Match for Skill Type (represents rate at which a job match occurs)
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and had at least one job since immigrating
β = Coefficient; HR = Hazard Ratio; SE = Robust Standard Error (based on non-exponentiated coefficients)
Sample Size: N=2,985; Model 7a: n=2,970; Model 7b: n=2,933; Model 7c: n=2,933; Model 7d: n=2,933
Number of Censored Cases in final model: 1,512 (Model 7d)
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001

workers experience greater employment success than immigrants who arrive under other admission class categories.

Model 7b: Effects of Human Capital Factors on the Hazard Rate of a Skill Type Match

The addition of education, language proficiency, and previous work experience factors affects the statistical significance of some of the region of origin variables and admission class variables. Age, visible minority status, and whether or not an immigrant lives in a major CMA continue to be significant predictors of the hazard rate of obtaining a skill type job match. The levels of statistical significance and the magnitude of the estimates for age and visible minority status remain unchanged (HR=0.98, $p<0.001$ and HR=0.68, $p<0.01$ respectively). These results continue to support the hypotheses regarding the relationships that these factors have with the employment success of immigrants. While the influence of whether or not an immigrant lives in a major CMA is still highly significant, the size of the estimate for this factor is lessened somewhat when human capital factors are accounted for (HR=0.74, $p<0.001$). Again, this finding contradicts the hypothesis that immigrants who live in Montreal, Toronto, or Vancouver experience greater employment success than those who live in other areas of Canada.

When human capital factors are included in the model, the relationships between arriving from Asia or South or Central America and the hazard rate of a job match are no longer statistically significant. The magnitudes of the estimates of arriving from Africa or Europe are also lessened when these factors are taken into account; however, individuals from these regions continue to obtain skill type matches at a slower rate than immigrants from North American areas (HR=0.57, $p<0.05$ and HR=0.65, $p<0.05$ respectively). The negative relationship between being from the Caribbean or Guyana and the hazard rate is slightly greater than in Model 7a and continues to indicate that immigrants who arrive from this region take longer to obtain a job match than immigrants who arrive from North American nations (HR=0.51, $p<0.05$). Generally, these findings continue to support the hypothesis that immigrants who arrive from non-traditional source regions experience less employment success than those from traditional source regions.

The addition of human capital variables also changes the statistical significance of some of the admission class categories. When these factors are included, being an immigrant in the "Refugee or Other" category is no longer a significant predictor of the rate at which one obtains a skill type job match. However, arriving under the "Business" category has a statistically significant relationship with the hazard rate of obtaining a skill type match. When human capital factors are controlled, business class immigrants obtain skill type job matches more quickly than immigrants in the "Skilled Worker" class (HR=1.53, $p<0.05$). This counters my anticipated findings which assume that skilled workers experience greater employment success than those who immigrate under other admission classes.

The data also indicate that several of the human capital variables have statistically significant relationships with the hazard rate of obtaining a skill type match. Of the education variables, two have positive and significant relationships with the hazard rate of obtaining this type of job match. Immigrants with a high school diploma or lower and immigrants who have graduated from trade school or college obtain skill type matches at faster rates than immigrants with a Bachelor's degree (HR=1.59, $p<0.01$ and HR=1.41, $p<0.001$ respectively). These results support my original hypothesis that immigrants with lower levels of education experience greater employment success than those with higher levels of education.

In addition, having a high level of proficiency in either English or French is beneficial to immigrants in obtaining a job match, as seen in previous models. Therefore, immigrants with high levels of proficiency in either English or French are predicted to take less time to obtain job matches at the skill type level than immigrants with lower levels of proficiency. These results provide further support to my original hypothesis that immigrants with higher proficiency in one or both official languages experience greater employment success than those with lower English or French language proficiency. The data also show that immigrants who have worked in their intended occupations prior to arriving in Canada obtain job matches more quickly than those without this type of experience

(HR=1.51, p<0.001). This result supports my original hypothesis that immigrants with previous work experience have greater employment success in Canada than those without.

Model 7c: Effect of the SES of Intended Occupation on the Hazard Rate of a Skill Type Job Match

The addition of the SES variable changes the statistical significance of some predictors. The "Business" class admission category and the "High School Diploma or Lower" education variable are no longer significant predictors of the hazard rate of a skill type match when the SES of intended occupation is controlled. All of the remaining variables maintain their status as significant predictors of the hazard rate of obtaining a skill type match. The hazard ratios of some of these variables have changed slightly with the addition of the SES variable.

Of the ascribed and demographic characteristics, the effect of age remains the same, indicating that older immigrants still obtain skill type job matches at a slower rate than younger immigrants when the SES of an immigrant's intended occupation is controlled (HR=0.98; p<0.001). This continues to support the hypothesis that expects an inverse relationship between age and the employment success of immigrants. The data also indicate that visible minority immigrants take longer to obtain a job match at the skill type level when the SES of intended occupation is controlled (HR=0.74, p<0.001). This finding again supports the hypothesis that visible minority immigrants experience less employment success in Canada than non-visible minority immigrants.

Whether or not an immigrant lives in a major CMA also continues to be a significant predictor of the hazard rate of obtaining a skill type match. Immigrants who live in a major CMA are still found to obtain skill type matches at a slower rate than immigrants not living in a major CMA in this model (HR=0.73; p<0.001). This is further evidence countering my original hypothesis regarding the effect of living in a major CMA – immigrants who do not live in a major CMA actually experience greater employment success than those who live in Montreal, Toronto, or Vancouver.

The region of origin variables that are statistically significant in Model 7b remain significant predictors of the hazard rate of obtaining a skill type match. Individuals from Africa and the Caribbean or Guyana take longer to obtain a skill type match than immigrants who arrive from areas of North

America (HR=0.56, p<0.05 and HR=0.49, p<0.05 respectively). Individuals from Europe are also found to obtain skill type matches at a slower rate than individuals from North America (HR=0.62, p<0.05). These results support the hypothesis that immigrants from traditional source countries experience greater employment success than those from non-traditional source countries. The data show that the magnitude of this disadvantage is smaller for Europeans than for individuals from Africa or the Caribbean or Guyana.

The only level of education that is statistically significant when the SES of intended occupation is controlled is the "Trade School or College Complete" variable. The data indicate that immigrants who have completed this level of education obtain skill type matches more quickly than those with a Bachelor's degree (HR=1.25, p=0.05). This finding lends support to my original hypothesis that immigrants with lower levels of education experience greater employment success than those with higher levels of education. The addition of the SES variable does not affect the statistical significance levels or hazard ratios of the language proficiency variables. The data continue to support the hypothesis that immigrants with high levels of English or French language proficiency experience greater employment success in Canada than those with lower levels of proficiency, indicating that the higher an immigrant's proficiency in English or French, the more quickly he or she is predicted to obtain a skill type match (HR=1.02, p<0.001 and HR=1.01, p<0.001 respectively). The last human capital variable entered indicates that immigrants with previous work experience in their intended occupations obtain job matches at a faster rate than those without previous work experience, even when the SES of intended occupation is controlled (HR=1.24, p<0.001).

The SES of immigrants' intended occupations is also a statistically significant predictor of the hazard rate of obtaining a skill type job match. The data indicate that, for every increase of one in the SES score of an immigrant's intended occupation, the hazard rate of obtaining a job match decreases by 8% (HR=0.92, p<0.001). Therefore, immigrants whose intended occupations have high SES scores are predicted to take longer to obtain a skill type match than those whose intended occupations have lower SES scores. This supports the hypothesis that immigrants who intend to work in high-status

occupations experience less employment success than those who intend to work in low-status occupations, lending further support to the theory that social closure may have an impact on the economic integration of immigrants in Canada.

Model 7d: Effects of Occupational Characteristics on the Hazard Rate of a Skill Type Match

The addition of occupational variables changes the statistical significance of several variables. When occupational characteristics are controlled, sex becomes a significant predictor of the hazard rate of obtaining a skill type match. The data indicate that immigrant men obtain job matches at a faster rate than immigrant women when these characteristics are controlled (HR=1.13, $p<0.05$). This supports the hypothesis that immigrant men experience greater employment success in Canada than immigrant women. While the statistical significance of the sex variable changes in this model, the level of statistical significance and the magnitude of the estimates for the age, visible minority status, and CMA variables are the same as is Model 7c (HR=0.98, $p<0.001$; HR=0.67, $p<0.01$ and HR=0.73, $p<0.001$ respectively). The results regarding the influence of age and visible minority status continue to support the hypotheses regarding these two variables: older immigrants experience more difficulty obtaining a job match than younger immigrants and visible minority immigrants take longer to obtain a job match than non-visible minority immigrants. The data for the CMA variable also continue to indicate that immigrants living in a major CMA take longer to obtain a job that matches the skill type of their intended occupations than immigrants who live elsewhere. As with previous models, this result continues to counter my initial hypothesis which anticipates that immigrants living in Montreal, Toronto, or Vancouver experience greater employment success than those who live in other areas.

With the inclusion of occupational characteristics, some regions of origin variables gain statistical significance. Both the "Asia" and "Middle East" region of origin variables become significant, indicating that individuals from these areas obtain skill type matches at a slower rate than individuals from North America (HR=0.62, $p<0.05$ and HR=0.57, $p<0.05$ respectively). The results for the region of origin variables also continue to indicate that individuals from Africa, the Caribbean or Guyana, or Europe take longer to obtain skill type matches than individuals from North America

(HR=0.53, p<0.01; HR=0.62, p<0.01 and HR=0.57, p<0.05 respectively). These findings continue to support my general hypothesis that immigrants from non-traditional source regions experience less employment success than those from a traditional source region such as North America.

The levels of statistical significance for some of the education variables change with the addition of occupational characteristics. Being an immigrant with a high school education or lower regains statistical significance in this model; immigrants with this level of education obtain job matches more quickly than immigrants with a Bachelor's degree (HR=1.40, p<0.05). In addition, the effect of being a trade school or college graduate loses statistical significance when occupational characteristics are controlled. However, having a Master's degree or higher becomes statistically significant in this model. The data indicate that immigrants with a Master's degree or higher obtain skill type matches at a faster rate than immigrants with a Bachelor's degree only (HR=1.17, p<0.05). While the result for the "High School or Lower" variable supports the hypothesis that immigrants with lower levels of education experience greater employment success, the result for the "Master's degree or Higher" variable continues to counter this general assumption.

With the addition of occupational characteristics, data for the other human capital factors remain similar to the results in Model 7c. First, the higher an immigrant's proficiency in English or French, the more quickly he or she is predicted to obtain a job that matches the skill type of his or her intended occupation (HR=1.02, p<0.001 and HR=1.01, p<0.001 respectively). Again, these findings continue to support the hypothesis that the higher an immigrant's proficiency in English or French, the greater employment success he or she experiences. Second, previous work experience also continues to be a highly significant predictor of a skill type match. Immigrants who work in their intended occupations prior to immigrating obtain skill type matches at a faster rate than immigrants without previous experience (HR=1.50, p<0.001). This finding is consistent across models and provides further support to the hypothesis that immigrants with previous experience in their intended occupations experience greater employment success than those without this type of work experience. This finding also supports the general assumptions of human capital theory.

The SES of an immigrant's intended occupation remains a significant predictor of the hazard rate when other occupational characteristics are included in the model. The data indicate that when occupational characteristics and other factors are accounted for, the higher the SES score of an immigrant's intended occupation, the longer it takes him or her to obtain a job match (HR=0.90, $p<0.05$). This finding continues to support the hypothesis that immigrants seeking high-status occupations experience less employment success than those who seek employment in low-status occupations due to the process of social closure.

Several of the occupational characteristics entered in the model have statistically significant relationships with the hazard rate of obtaining a skill type job match. Of the aptitude variables, five of the nine factors are significant predictors of the hazard rate. The data show that immigrants who intend to work in occupations requiring high aptitudes in numerical ability, clerical perception, and form perception obtain skill type matches more quickly than those whose intended occupations require lower levels of ability in these aptitudes (HR=1.01, $p<0.01$; HR=1.003, $p<0.01$ and HR=1.01, $p<0.01$ respectively). Conversely, immigrants whose intended occupations require a high aptitude in spatial perception or manual dexterity obtain job matches at a slower rate than those whose intended occupations require lower levels of ability for these aptitudes (HR=0.996, $p<0.05$ and HR=0.99, $p<0.01$ respectively). Although two of the five aptitude variables (spatial perception and manual dexterity) support the hypothesis that the higher the aptitude required by an immigrant's intended occupation, the lower employment success he or she experiences, the data also indicate that immigrants whose intended occupations require a higher aptitude in numerical ability, form perception, or clerical perception obtain job matches more quickly than those with lower requirements in these abilities. Thus, a general theory about the effect of occupational aptitudes can not be developed from these results. Further elaboration of these findings can be found in Chapter Eleven.

In addition to the aptitude variables, some of the other occupational characteristic variables are also statistically significant predictors of the hazard rate of obtaining a skill type match. The data indicate that the higher the complexity of working with data required of an immigrant's intended

occupation, the longer it takes for him or her to obtain a job match (HR=0.90, p<0.01). However, the complexity of working with people that is required of an immigrant's intended occupation has a positive relationship with the hazard rate, indicating that the higher the complexity of working with people required of an immigrant's intended occupation, the more quickly he or she obtains a skill type match (HR=1.05, p<0.05). While the inverse relationship between the complexity of working with data and the hazard rate of obtaining a skill type job match supports my initial hypothesis, the results relating to the complexity of working with people counters my anticipated findings. Therefore, while the complexity of working with data or people are both significant predictors of the hazard rate of obtaining a skill type match, they do not have the same type of effect.

Model 8: Event History Analysis of Skill Level Job Match

The following sections discuss the results of the Cox proportional hazards models which predict the hazard rate of a skill level match. These sections are sub-divided to represent the different sets of variables entered in the model. Model 8a represents the effects that ascribed and demographic factors have on the hazard rate of a skill level match, followed by a discussion of the effects of human capital factors (Model 8b), the SES of an immigrant's intended occupation (Model 8c), and other occupational characteristics (Model 8d). A detailed table of all of the results can be found in Table 8.5.

Model 8a: Effects of Ascribed and Demographic Factors on the Hazard Rate of a Skill Level Match

Among the ascribed and demographic factors, several of the variables that are significant in previous models are found to be statistically significant predictors of the rate at which an immigrant obtains a skill level match. The data show that age, visible minority status, and whether or not an immigrant lives in a major CMA are statistically significant predictors of the hazard rate of obtaining a skill level match. Sex is not statistically significant in this model.

An immigrants' age is a highly significant variable in this model. The data indicate it takes a longer amount of time for older immigrants to obtain a skill level match than it takes younger immigrants (HR=0.97, p<0.001). This continues to support the hypothesis that younger immigrants experience greater employment success in Canada than older immigrants. The results also continue to

TABLE 8.5: MODEL 8 –Event History Analysis for Rate at Which Skill Level Match Occurs

	Model 8a			Model 8b			Model 8c			Model 8d		
	β	HR	SE	β	HR	SE	β	HR	SE	β	HR	SE
Sex	0.051	1.05	0.064	0.097	1.10	0.066	0.111	1.12	0.067	0.074	1.08	0.072
Age	-0.026***	0.97	0.005	-0.026***	0.97	0.005	-0.025***	0.97	0.005	-0.023***	0.98	0.005
Visible Minority Status	-0.266*	0.77	0.116	-0.255*	0.77	0.112	-0.262*	0.77	0.112	-0.273*	0.76	0.114
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.444***	0.64	0.064	-0.377***	0.69	0.067	-0.380***	0.68	0.067	-0.404***	0.67	0.114
Region of Origin (North America=Reference Category)												
Africa	-0.946**	0.39	0.275	-0.903**	0.40	0.268	-0.904**	0.40	0.270	-0.927**	0.40	0.276
Asia	-1.201***	0.30	0.280	-0.871**	0.42	0.272	-0.880**	0.41	0.274	-0.889**	0.41	0.279
Caribbean and Guyana	-1.112***	0.33	0.314	-1.074**	0.34	0.310	-1.091***	0.34	0.311	-1.109***	0.33	0.317
Europe	-1.036***	0.35	0.260	-0.786**	0.46	0.252	-0.802**	0.45	0.253	-0.825**	0.44	0.259
Middle East	-0.921**	0.40	0.313	-0.796**	0.45	0.308	-0.816**	0.44	0.310	-0.891**	0.41	0.318
Oceania	-1.056*	0.35	0.446	-1.063*	0.34	0.452	-1.095*	0.33	0.451	-1.13*	0.32	0.445
South/Central America	-1.053***	0.35	0.301	-0.681*	0.51	0.300	-0.686*	0.50	0.301	-0.710*	0.49	0.310
Admission Class (Skilled Worker=Reference Category)												
Business	0.526	1.53	0.217	0.431	1.54	0.234	0.321	1.38	0.237	0.607	1.50	0.242
Family	-0.170	0.84	0.135	-0.146	0.86	0.139	-0.196	0.82	0.142	-0.140	0.87	0.141
Provincial Nominee	0.125	1.13	0.268	-0.056	0.94	0.294	-0.097	0.91	0.288	-0.102	0.90	0.300
Refugee or Other	-0.799**	0.45	0.278	-0.380	0.68	0.302	-0.419	0.66	0.298	-0.318	0.73	0.293
Level of Education (Bachelor's Degree= Reference Category)												
High School or Lower	—	—	—	0.577***	1.78	0.148	0.466**	1.59	0.155	0.465**	1.59	0.159
Some Trade/College/Univ.	—	—	—	0.118	1.12	0.135	0.066	1.07	0.136	0.047	1.05	0.137
Trade/College Complete	—	—	—	0.338***	1.40	0.097	0.263**	1.30	0.101	0.247*	1.28	0.102
Master's Degree or Higher	—	—	—	0.348***	1.42	0.068	0.369***	1.45	0.068	0.383***	1.47	0.069

TABLE 8.5 Continued

	Model 8a			Model 8b			Model 8c			Model 8d		
	β	HR	SE	β	HR	SE	β	HR	SE	β	HR	SE
Language Proficiency												
English	—	—	—	0.016***	1.02	0.001	0.016***	1.02	0.001	0.017***	1.02	0.002
French	—	—	—	0.009***	1.01	0.001	0.008***	1.01	0.001	0.009***	1.01	0.001
Previous Experience	—	—	—	0.173**	1.19	0.060	0.191**	1.21	0.061	0.216***	1.24	0.062
SES of Intended Occupation	—	—	—	—	—	—	-0.058*	0.94	0.024	-0.030	0.97	0.044
Aptitudes for Intended Occupation												
Verbal Ability	—	—	—	—	—	—	—	—	—	-0.009**	0.99	0.003
Numerical Ability	—	—	—	—	—	—	—	—	—	0.003	1.00	0.002
Spatial Perception	—	—	—	—	—	—	—	—	—	0.005*	1.01	0.002
Form Perception	—	—	—	—	—	—	—	—	—	-0.002	1.00	0.003
Clerical Perception	—	—	—	—	—	—	—	—	—	0.004**	1.004	0.003
Motor Co-ordination	—	—	—	—	—	—	—	—	—	-0.001	1.00	0.004
Finger Dexterity	—	—	—	—	—	—	—	—	—	0.002	1.00	0.004
Manual Dexterity	—	—	—	—	—	—	—	—	—	0.001	1.00	0.005
D.P.T. Scores for Intended Occupation												
Data/Information	—	—	—	—	—	—	—	—	—	0.015	1.02	0.041
People	—	—	—	—	—	—	—	—	—	-0.024	0.98	0.024
Things	—	—	—	—	—	—	—	—	—	-0.040*	0.96	0.017
Number of Jobs Held	—	—	—	—	—	—	—	—	—	-0.041	0.96	0.030

Notes:
Dependent Variable: Hazard Rate of Obtaining Job Match for Skill Level (represents rate at which a job match occurs)
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and had at least one job since immigrating
β = Coefficient; HR = Hazard Ratio; SE = Robust Standard Error (based on non-exponentiated coefficients)
Sample Size: N=2,784; Model 8a: n=2,779; Model 8b: n=2,737; Model 8c: n=2,737; Model 8d: n=2,737
Number of Censored Cases in final model: 1,400 (Model 8d)
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001

support the hypothesis that non-visible minority immigrants have greater employment success than visible minority immigrants, indicating that visible minority immigrants obtain skill level matches at a slower rate than non-visible minorities (HR=0.77, $p<0.05$). Whether or not an immigrant lives in a major CMA is also highly significant; immigrants living in a major CMA obtain skill level matches at a slower rate than immigrants who live elsewhere in Canada (HR=0.64, $p<0.001$).

All of the regions of origin variables are significant predictors of the hazard rate of obtaining a skill level match. Immigrants who arrive in Canada from Africa, Asia, the Caribbean or Guyana, Europe, the Middle East, Oceania or Australia, and South or Central America all obtain skill level matches at a slower rate than immigrants who arrive from North American areas (HR=0.39, $p<0.01$; HR=0.30, $p<0.001$; HR=0.33, $p<0.001$; HR=0.35, $p<0.001$; HR=0.35, $p<0.05$ and HR=0.35, $p<0.001$ respectively). On the whole, these results support the hypothesis that immigrants from more traditional regions experience greater employment success than immigrants from non-traditional regions.

The immigrant admission class variables are, for the most part, not significant predictors of the hazard rate of obtaining a skill level match. The only admission class that is statistically significant in this model is the "Refugee or Other" category. The data show that immigrants who arrive under this admission class obtain skill level matches at a slower rate than immigrants in the "Skilled Worker" admission class (HR=0.45, $p<0.01$). This finding supports the hypothesis that individuals who immigrate to Canada as skilled workers experience greater employment success than those who arrive under other immigrant admission classes.

Model 8b: Effects of Human Capital Factors on the Hazard Rate of a Skill Level Match

The addition of human capital variables does not largely alter the statistical significance of the ascribed and demographic variables discussed above. While the levels of significance change for some of the regions of origin variables, the only variable to lose statistical significance is the admission class variable "Refugee or Other". Therefore, when human capital characteristics are controlled the admission class under which an immigrant arrives in Canada is not a significant predictor of the rate at which he or she obtains a skill level match. In addition, when human capital factors are included in the

model, the negative impact of living in a major CMA is lessened slightly, indicating that some of the disadvantage that immigrants in these areas experience is partially explained by differences in human capital. However, immigrants in major CMAs still obtain skill level matches at a slower rate than immigrants who live elsewhere (HR=0.69, $p<0.001$). The influences of both the age and visible minority status variables are unchanged. These results continue to support the hypotheses that younger immigrants experience greater employment success than older immigrants and that non-visible minority immigrants experience greater employment success than visible minority immigrants, even when variations in human capital factors are controlled.

All of the hazard ratios for the regions of origin change slightly when education, language proficiency, and work experience are included in the model. However, individuals who immigrate to Canada from areas of North America continue to obtain skill level matches more quickly than immigrants from all other regions, even when human capital variables are controlled. These results continue to support the hypothesis by indicating that immigrants who arrive from North America, a traditional source region, have greater employment success than immigrants from all other regions, most of which are considered "non-traditional" source regions.

Several of the education variables are also statistically significant predictors of the hazard rate of a skill level match. Immigrants whose highest level of education obtained outside of Canada is a high school education or lower, as well as those who have graduated from trade school or college, obtain skill level matches more quickly than immigrants with a Bachelor's degree (HR=1.78, $p<0.001$ and HR=1.40, $p<0.001$ respectively). Immigrants with a Master's degree or higher also obtain skill level matches at a faster rate than immigrants with a Bachelor's degree (HR=1.42, $p<0.001$). These results continue to indicate that immigrants with Bachelor's degrees take longer to obtain a job match than immigrants with lower or higher levels of education. Therefore, the hypothesis that the lower an immigrant's education, the greater employment success he or she experiences in terms of a job match is not entirely supported, as there again appears to be some advantage to having a degree that is higher than a Bachelor's degree.

As with the previous models, the data show that there is an advantage to having a high level of language proficiency in English or French. The results lend further support to the hypothesis which anticipates a positive relationship between official language proficiency and employment success: immigrants with higher proficiency in an official language obtain skill level matches more quickly than immigrants with lower levels of English or French language proficiency. These results also indicate that proficiency in the English language has a slightly greater influence on job match than French language proficiency.

Lastly, the result for the previous work experience variable indicates that immigrants who work in their intended occupations prior to immigrating to Canada obtain skill level matches more quickly than those who do not have previous experience (HR=1.19, $p<0.01$). These results again support the hypothesis that immigrants with previous work experience in their intended occupations experience greater employment success in Canada than those without this type of work experience.

Model 8c: Effect of SES of Intended Occupation on the Hazard Rate of Skill Level Match

The addition of the SES variable does not change the statistical significance of any of the variables that are significant in Model 8b. The levels of significance and the magnitudes of the estimates for the age and visible minority status variables remain the same when the SES of intended occupation is added to the model (HR=0.97, $p<0.001$ and HR=0.77, $p<0.05$ respectively). These results continue to support the hypotheses regarding age and visible minority status, indicating that older immigrants experience less employment success than younger immigrants and that visible minority immigrants experience less employment success than non-visible minority immigrants. The negative impact of living in a major CMA is slightly larger when the SES of intended occupation is controlled. Immigrants who live in a major CMA continue to obtain skill level matches at a slower rate than those who do not live in Montreal, Toronto, or Vancouver (HR=0.68, $p<0.001$). Again, these results counter the hypothesis regarding the CMA variable.

With the addition of the SES of intended occupation variable, all of the regions of origin variables retain their statistical significance. The size of the estimates for the regions of origin

variables change only slightly with the addition of this variable. Again, these results largely support my original hypothesis, indicating that immigrants who arrive in Canada from North America experience greater employment success than immigrants who arrive from other regions of the world (i.e. they obtain skill level matches at a faster rate). Individuals who arrive from Europe are found to take longer to obtain a skill level match than individuals from South or Central America when compared to those who arrive from areas of North America.

All of the levels of education variables that are significant in Model 8b retain their statistical significance in this model. The data continue to show that, when the SES of intended occupation is controlled, immigrants with a high school education or lower and immigrants who have completed trade school or college obtain skill level matches at a faster rate than immigrants with a Bachelor's degree (HR=1.59, $p<0.01$ and HR=1.30, $p<0.01$ respectively). Immigrants with a Master's degree or higher also obtain skill level matches more quickly than those with a Bachelor's degree only (HR=1.45, $p<0.001$). Again, these data only partially support my initial hypotheses regarding the effect of level of education. While the findings for the "High School or Lower" and "Trade School or College Complete" variables support the hypothesis that those with lower levels of education experience greater employment success, the result for the "Master's Degree or Higher" variable indicates that immigrants with higher levels of education also have an advantage over those whose highest level of education is a Bachelor's degree.

The addition of the SES of intended occupation variable does not alter the statistical significance or hazard ratios of the language proficiency variables. The data indicate that the higher an immigrant's proficiency in English or French, the greater his or her hazard rate of obtaining a skill level match (HR=1.02, $p<0.001$ and HR=1.01, $p<0.001$ respectively). Therefore, the data in this model continue to support the hypothesis regarding the effect of official language proficiency on employment success: immigrants with high levels of English or French language proficiency experience greater employment success in Canada than those with lower levels of proficiency when the SES of intended occupation is controlled. In addition, the hypothesis regarding the relationship between previous work

experience and employment success also continues to be supported. The data show that immigrants who work in their intended occupations prior to immigrating take less time to obtain a skill level match than those without previous work experience, even when ascribed, demographic, human capital factors, and the SES of intended occupation are controlled (HR=1.24, $p<0.001$).

The SES of immigrants' intended occupations is also a statistically significant predictor of the hazard rate of obtaining a skill level match. The results in this model show that, for every increase of one in the SES score of an immigrant's intended occupation, the hazard rate of obtaining a skill level match decreases by 6% (HR=0.94, $p<0.05$). Therefore, immigrants whose intended occupations have high SES scores take longer to obtain a job that matches the skill level of their intended occupation than those whose intended occupations have lower SES scores. This finding further supports the hypothesis that those immigrants who seek employment in higher status occupations experience less employment success than those who seek employment in lower status occupations. This also supports the theory that many immigrants experience a form of social closure when seeking employment in their intended occupations

Model 8d: Effects of Occupational Characteristics on the Hazard Rate of a Skill Level Match

The inclusion of occupational characteristics only changes the significance of the SES of intended occupation variable. This variable ceases to be a statistically significant predictor of the hazard rate of obtaining a skill level match when these variables are added. The magnitude of the estimates of both age and visible minority status change somewhat when occupational characteristics are included in the model. Both of these results support my initial hypotheses which anticipate that older immigrants experience less employment success when compared to younger immigrants and that visible minority immigrants experience a lower degree of employment success than non-visible minority immigrants. Whether or not an immigrant lives in a major CMA also remains highly significant when occupational characteristics are included in the model. In fact, the negative impact of living in Montreal, Toronto, or Vancouver is slightly larger. The results continue to show that immigrants who live in a major CMA obtain skill level matches at a slower rate than immigrants living elsewhere, even when

occupational characteristics are controlled (HR=0.67, p<0.001). This finding again challenges the hypothesis that immigrants who live in a major CMA experience greater employment success than those living elsewhere.

The inclusion of occupational characteristics in the model does not largely affect the statistical significance or hazard ratios of the regions of origin variables. The level of statistical significance for all of the regions of origin variables remain the same. The data continue to show that individuals who immigrate to Canada from areas of North America obtain skill level matches more quickly than individuals from all other regions of origin. Again, these results generally support this research hypothesis that immigrants from traditional source regions experience greater employment success than those from non-traditional source regions.

Of the human capital indicators, there are very few changes in the level of education variables. The magnitude of the hazard ratio of the "High School or Lower" variable remains the same when occupational characteristics are included in the model – immigrants with a high school diploma or less obtain skill level matches at a faster rate than immigrants with Bachelor's degrees (HR=1.59, p<0.01). The data also show that immigrants whose highest level of education obtained outside of Canada is the completion of trade school or college obtain skill level matches more quickly than those whose highest level of education is a Bachelor's degree (HR=1.28, p<0.05). However, the effect of having a Master's degree or higher becomes greater with the inclusion of occupational characteristics in the model, indicating that these immigrants also obtain skill level matches more quickly than immigrants with Bachelor's degrees (HR=1.47, p<0.001). This specific finding continues to contrast this research hypothesis which anticipates an inverse relationship between level of education and employment success (i.e. those with lower education will have greater employment success). However, the findings regarding immigrants with a high school education or lower and trade school or college graduates support this anticipated relationship.

The remaining human capital variables, English and French language proficiency and previous work experience, maintain their statistical significance when occupational characteristics are included

in the model. Both of the language proficiency variables remain unchanged in terms of their levels of significance and their hazard ratios. These results again support this research hypothesis that the higher an immigrant's proficiency in English or French, the greater his or her employment success in Canada (HR=1.02, $p<0.001$ and HR=1.01, $p<0.001$ respectively). With the addition of occupational characteristics, the data also continue to indicate that immigrants with previous work experience obtain job matches more quickly than those without (HR=1.24, $p<0.001$). This finding provides further support for the hypothesis that immigrants with previous work experience in their intended occupations prior to immigrating experience greater employment success than those without previous experience.

As in the logistic regression model for skill level match, the SES of intended occupation is no longer statistically significant when other occupational characteristics are included. This is likely due to the fact that the SES scores of occupations are related to the measurement of the skill levels associated with occupations. This could also be an indicator that some occupational characteristics other than SES are more influential in predicting the hazard rate of obtaining a skill level match. While this may lead one to question whether the inclusion of the SES of intended occupation variable is problematic to include in the model, it does remain a statistically significant predictor in Models 5d, 6d, and 7d. Therefore, this finding may be more related to how these variables interact with the skill levels associated with occupations.

While the SES of intended occupation is not significant in Model 8d, some of the aptitude variables are statistically significant in this model. The data show that the higher the verbal ability required for an immigrant's intended occupation, the longer it takes for him or her to obtain a skill level match (HR=0.99, $p<0.01$). Conversely, the higher the aptitude required of an immigrant's intended occupation in spatial perception or clerical perception, the more quickly he or she is predicted to obtain a skill level match (HR=1.01, $p<0.05$ and HR=1.004, $p<0.01$ respectively). Therefore, immigrants whose intended occupations require low levels of verbal ability or high levels of spatial perception and clerical perception are predicted to obtain skill level matches more quickly than those who seek employment in occupations requiring high levels of verbal ability or low levels of clerical

and spatial perception. Only the results for "Verbal Ability" support my general hypothesis that the higher the aptitude required by one's intended occupation the lower employment success he or she experiences. However, these findings do not necessarily contradict the broader theory that the process of social closure exists when immigrants attempt to find employment in their intended occupations, as some lower status occupations may require higher levels of, for example, spatial perception, than some higher status occupations. This will be discussed in more detail in Chapter Eleven.

The variable representing the level of complexity of working with things that is associated with an immigrant's intended occupation is also a significant predictor of the hazard rate of obtaining a skill level match. The data show that the higher the complexity of working with things for an immigrant's intended occupation, the longer it takes for him or her to obtain a skill level match ($HR=0.96$, $p<0.05$). This finding supports the hypothesis that immigrants whose intended occupations involve more complex tasks experience less employment success than those pursuing employment in occupations that involve less complex tasks.

Shape of the Hazard Function: Figures 8.2-8.4

The shape of the hazard function for each model can be found at the end of this chapter (Figures 8.2, 8.3, 8.4, and 8.5), represented by a smoothed hazard estimate based on Kaplan-Meier estimates. The shape of the hazard function represents the hazard (or "risk") of obtaining a job match relative to the number of days since an individual immigrated to Canada, when all variables are held at their average value (Cleves et al,. 2004). In general, the hazard functions of all models are similar in shape and indicate that obtaining a job match decreases over time since immigration (within immigrants' first two years in Canada). The graphs indicate that immigrants tend to obtain job matches during their first two hundred or so days in Canada. The hazard of a job match then drops substantially, until about 400 days after immigrating. The hazard functions rise slightly between days 400 and 500; however, this may be due to the seam effect, a common issue in longitudinal data analysis (refer to a discussion of the seam effect in Chapter Five). Compared to the peak of the hazard function within the first 100 days, the second peak is much smaller. Therefore, it can be concluded that, during their first two years

in Canada, immigrants are at a greater "risk" of obtaining a job match during their first few months since arrival. This also echoes the descriptive findings in Figure 8.1. However, since the data only cover a span of two years, it is possible that the rate at which immigrants obtain job matches may increase over a longer period of time as they become more settled in Canadian society.

Summary

Chapter Eight begins with a description of the length of time that it takes for immigrants to obtain a job match during their first two years in Canada. The data show that, of those immigrants with a job match during the observed period, most find a job that matches some level of their intended occupation within their first year in Canada. The data also indicate that the most frequent point at which immigrants obtain a job match is upon arrival in Canada, suggesting that immigrants who have the greatest employment success in Canada are likely those who have pre-arranged employment. This pattern is also supported by Figures 8.2 to 8.5 which represent the hazard functions for each Cox model. These figures account for all individuals in the sample and indicate that the hazard of obtaining a job match is greater within immigrants' first few months in Canada. The hazard of obtaining a job match at any occupational classification level then decreases over time within immigrants' first two years in Canada.

The main focus of this chapter is a presentation of the results of four Cox proportional hazards models presented in Models 5, 6, 7, and 8. These models represent the hazard rate of obtaining a job match at different levels of occupational classification. While the results of these models are varied in terms of the variables that have statistically significant relationships with the hazard rate of obtaining job matches, there are general findings that can be discerned. Both visible minority status and whether or not an immigrant lives in a major CMA affect the hazard rate of obtaining a job match. Within all models, the data indicate that visible minority immigrants obtain job matches at a slower rate than non-visible minority immigrants. This continues to support the discrimination thesis, indicating that visible minority immigrants have more difficulty successfully integrating into Canada's labour market. Also, immigrants who live in major CMAs obtain job matches at a slower rate than immigrants who live elsewhere. Less consistent is the influence that sex has on the hazard rate of obtaining a job match.

While immigrant men obtain skill type matches more quickly than immigrant women (Model 7d), there is no significant difference between men and women with respect to the rate at which job matches are obtained at other levels of occupational classification.

The regions of origin variables also offer differing results; however, some regions of origin are statistically significant in all of the event history models. The common finding across models is that immigrants who arrive from the Caribbean or Guyana or European nations obtain job matches at a significantly slower rate than those from North America. Immigrants who arrive from Africa, Asia, and the Middle East also obtain major group, skill type, and skill level matches more slowly than those from North America. In general, the findings indicate that immigrants who arrive from a traditional source region such as North America obtain job matches at a faster rate than those who arrive from other regions of the world.

A consistent finding across the event history models is that immigrants with higher levels of English or French language proficiency obtain job matches more quickly than those with lower levels of proficiency. In addition, all of the event history models indicate that immigrants who have worked in their intended occupations prior to immigrating to Canada take less time to obtain a job match than those without previous work experience. These results suggest that human capital factors do play some role in the employment success of immigrants in Canada.

The age of immigrants is statistically significant at some point in all of the models. This variable continues to indicate that older immigrants experience less employment success than younger immigrants. Some of the levels of education variables are also statistically significant at some level of each of the event history models. Generally, the findings suggest that immigrants with a high school education or lower and trade school or college graduates obtain job matches more quickly than immigrants with Bachelor's degrees. Some models indicate that immigrants with a Master's degree also obtain job matches at a faster rate than those with a Bachelor's degree (particularly a major group or skill level match). Of the occupational characteristics, the most consistent finding is that the higher the SES score of an immigrant's intended occupation, the longer he or she takes to obtain a job match.

Further discussion and analysis of these findings can be found in the "Discussion and Conclusions" chapter (Chapter Eleven).

FIGURE 8.2: SHAPE OF HAZARD FUNCTION FOR UNIT GROUP JOB MATCH

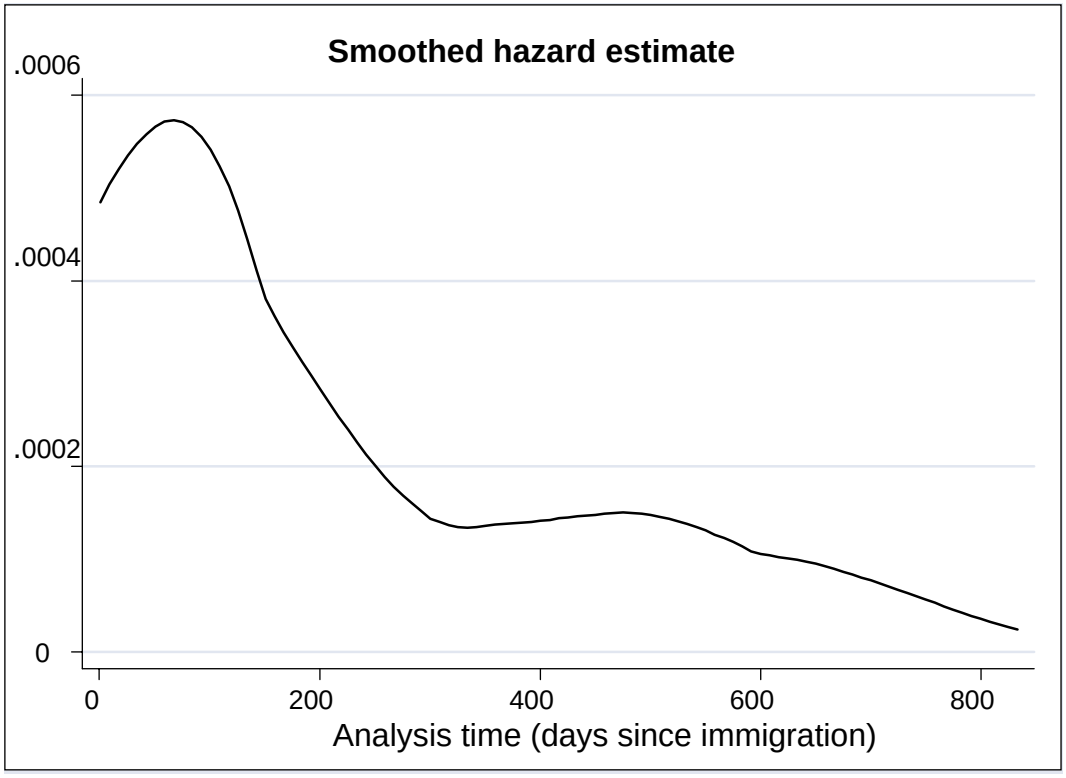


FIGURE 8.3: SHAPE OF HAZARD FUNCTION FOR MAJOR GROUP MATCH

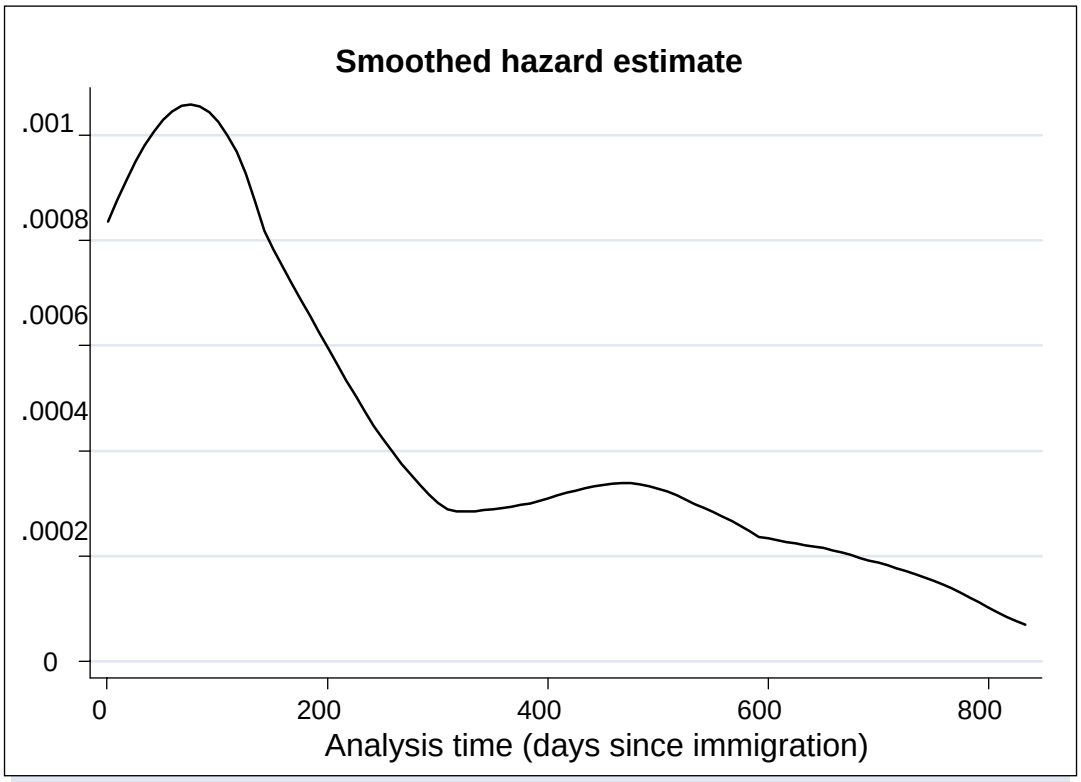


FIGURE 8.4: SHAPE OF HAZARD FUNCTION FOR SKILL TYPE MATCH

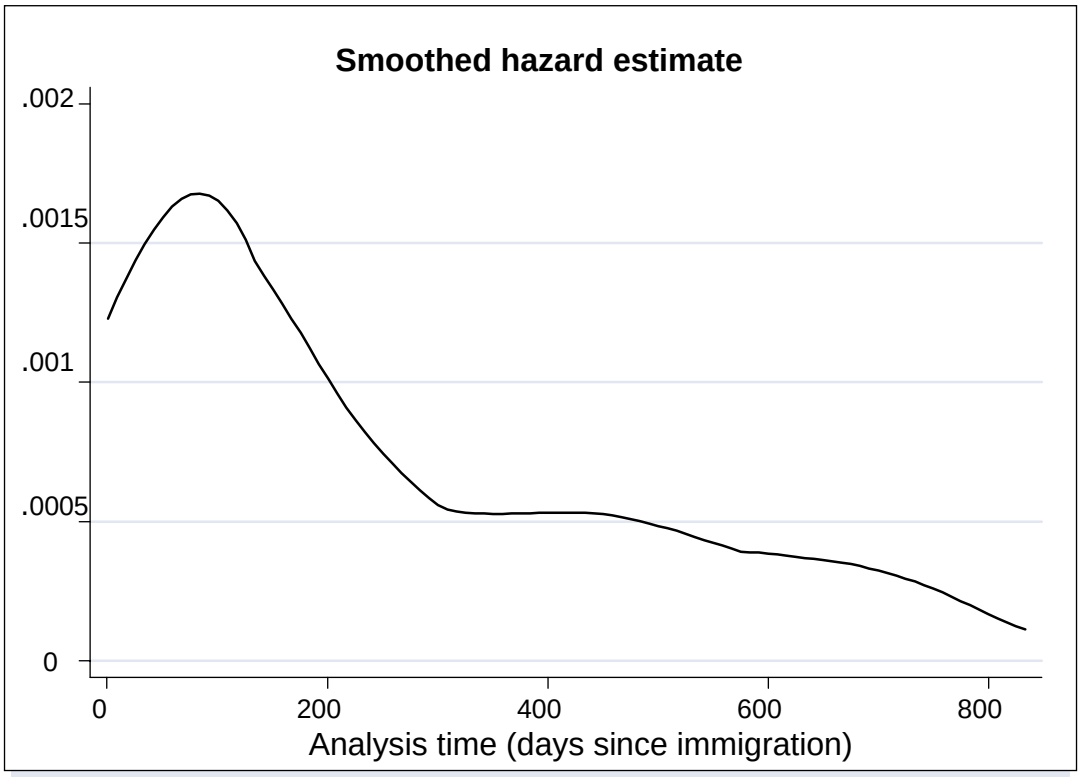
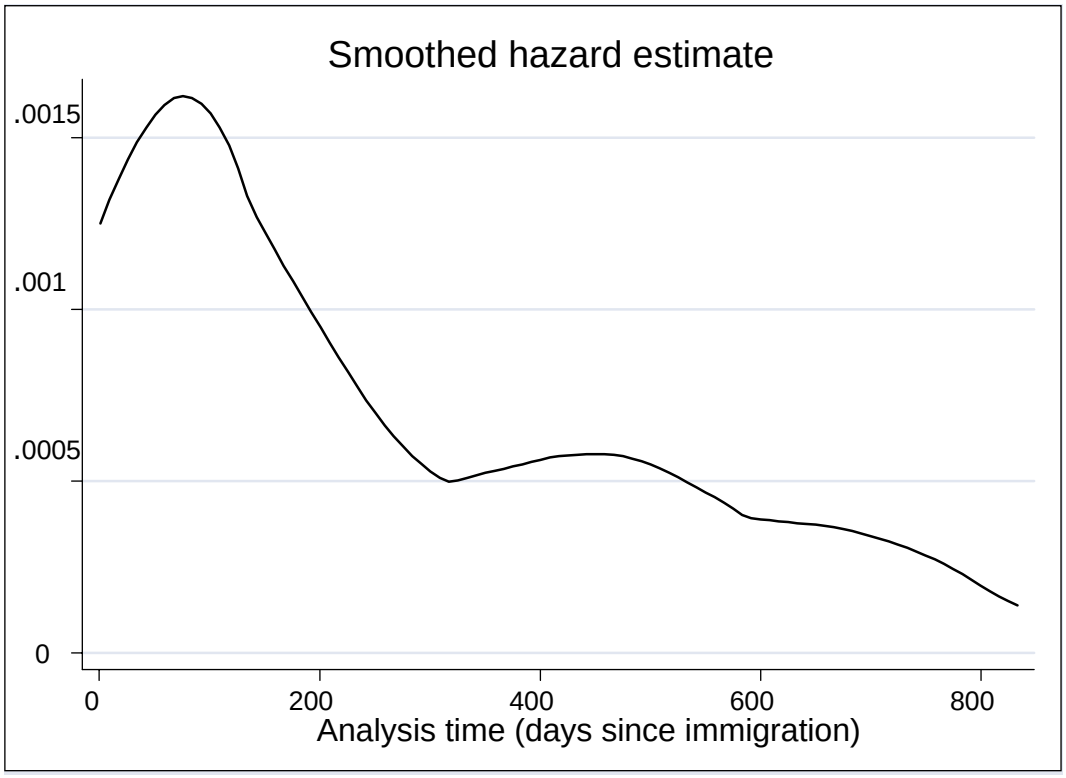


FIGURE 8.5: SHAPE OF HAZARD FUNCTION FOR SKILL LEVEL MATCH



Chapter Nine

Results of the OLS Regression Models

This chapter presents four ordinary least squares (OLS) regression models. The first two models represent how ascribed and demographic factors, human capital indicators, and the number of jobs an immigrant has held affect the occupational prestige scores (Model 9) and logged weekly wages (Model 10) of immigrants' most recently held jobs in Canada. The occupational prestige scores used in Models 9 and 11 are from a scale that ranks the 26 major groups of the NOC (Goyder and Frank, 2007). The natural log of the wage of immigrants' most recently held jobs is used as the dependent variable in Models 10 and 12 in an effort to obtain a more normal distribution of wages; the unlogged wages have some extreme values that prevent a normal distribution. The initial variable, weekly wage, is a derived variable created by Statistics Canada based on salary information provided about each job a respondent has held since arriving in Canada, allowing for comparable data.

As with the previous models, each set of factors is entered successively into each model beginning with the ascribed and demographic factors (Model a), followed by the human capital factors (Model b). Occupational characteristics of immigrants' intended occupations are excluded from these models, as they are not useful in predicting the prestige and wage of immigrants' most recently held jobs in Canada. Although these variables are of interest when examining the probability of a job match and the rate at which a job match occurs, the occupational prestige scores and wages of immigrants' most recent jobs represent very different dependent variables as they are not necessarily related to immigrants' intended occupations. That is, the prestige or wage of immigrants' most recent jobs may be more related to their qualifications and less so to characteristics of their intended occupations such as SES or task complexity. In addition, the variable that measures the number of jobs an immigrant has held since arriving in Canada will be included in the human capital model in an effort to determine whether immigrants who hold several jobs over their first two years are more or less rewarded in the labour market with respect to occupational prestige and wage.

In addition to Models 9 and 10, two other regression analyses are discussed in this chapter. These models measure the occupational prestige scores (Model 11) and logged wages (Model 12) of immigrants' most recently held jobs in Canada while controlling for the prestige scores and logged wages of their first jobs. These models allow for an identification of significant predictors of the change between immigrants' first and most recent jobs. In addition, the sample sizes are slightly lower for these models than for Models 9 and 10, as only those immigrants who have held at least two jobs are included in order to measure mobility between jobs. The weights have been adjusted accordingly to account for the different samples. Bootstrap weights are again employed for these regression analyses to estimate the unstandardized regression coefficients and the standard errors.

This chapter begins with a brief description of the dependent variables, occupational prestige and logged wage. These data are presented in an effort to obtain a general idea about the occupational prestige scores and logged wages for the immigrant population. Descriptive data regarding the changes in prestige and wage between immigrants' first and most recent jobs are also be reported. Some comparisons between the prestige scores and wages of immigrants with a job match and those without a job match during their first two years in Canada are also made. Discussions of the regression models follow the descriptive data. The results for these models are primarily discussed in terms of which variables are found to be statistically significant predictors of each dependent variable. Further elaboration and analysis of the significance of these findings is addressed in the "Discussion of Findings" chapter (Chapter Eleven).

Descriptive Data for Occupational Prestige Scores and Logged Wages of Most Recent Job

The following descriptive data provide information on the means, medians, and standard deviations of the dependent variables. Data on the occupational prestige scores (Table 9.1) and the logged wages of immigrants' most recently held jobs (Table 9.2) are presented. The first column of each table provides data from the full sample that is used for Models 9 and 10 (N=2,985). Due to the fact that Models 11 and 12 examine the effects of various factors on the change in prestige and logged wage between an immigrant's first job and his or her most recent job, this sample is restricted to only those immigrants

who have held at least two jobs (N=1,514). Because some immigrants' first jobs may also be their most recent jobs, presenting descriptive data on the most recent jobs of only those with two or more jobs provides more information on the variation between the dependent variables used for each set of models. Thus, Tables 9.1 and 9.2 also include descriptive data about the occupational prestige scores and wages of immigrants' most recently jobs for the restricted sample.

Within the full sample, the mean occupational prestige score of immigrants' most recently held jobs is 66.93 (on a scale of 100), with a standard deviation of 8.76 (Table 9.1). To put this into perspective, a score of 66.93 is closest to the prestige scores for the NOC major group "Technical and Skilled Occupations in Art, Culture, Recreation, and Sport", which has a prestige score of 66.6, and "Skilled Occupations in Primary Industry" which has a prestige score of 66.7 (Goyder and Frank, 2007). The lowest prestige score on the occupational scale is 52.8 ("Labourers in Primary Industry") while the highest score is 80.9 ("Professional Occupations in Health). Therefore, the mean prestige score of immigrants in this sample is toward the middle of the scale. In addition, the data show that the median prestige score of immigrants' most recent jobs in the original sample is slightly higher than the mean, indicating that there is a slightly negative skew in the prestige data. However, the restricted sample shows a slightly positive skew in the prestige scores for those who have held two or more jobs.

Table 9.1: Descriptive Data for Prestige of Most Recent Job – Full and Restricted Samples

	Full Sample (N=2,985)	**Restricted Sample: Those who have held 2 or more jobs (N=1,514)**
Mean	66.93	66.18
Median	67.14	65.7
Standard Deviation	8.76	8.80
Total (Valid Cases)	2,975	1,504

The data also indicate that those in the restricted sample have a slightly lower mean prestige score (66.18) than those in the full sample (66.93); however, this difference is not statistically significant at the 95% confidence level ($p<0.05$).

A slight negative skew in the logged wages of immigrants' most recently held jobs is apparent in the full sample (Table 9.2). The average logged wage is 6.20 for the full sample while the average logged wage in the restricted sample is lower at 6.11, while the standard deviations for both samples are similar. Again, the difference in mean values between these two samples is not statistically significant at the 95% confidence level ($p<0.05$). In addition, it should be noted that the number of valid cases for the logged wage data is lower than the number of valid cases for the prestige data. This is due to the fact that several respondents either refused to answer questions about their salaries or their responses fell into the "Don't Know" category.

Table 9.2: Descriptive Data for Logged Wage of Most Recent Job – Full and Restricted Samples

	Full Sample (N=2,985)	**Restricted Sample: Those who have held 2 or more jobs (N=1,514)**
Mean	6.20	6.11
Median	6.25	6.17
Standard Deviation	0.77	0.74
Total (Valid Cases)	2,647	1,352

Cross-tabulations of the Occupational Prestige and Logged Wage by Unit Group Job Match

Cross-tabulations between (a) the change in immigrants' occupational prestige score and whether or not they received a job match in their first two years in Canada (Table 9.3) and (b) between the change in immigrants' wages and whether or not they received a job match since arriving in Canada (Table 9.5) are presented below. Only the restricted sample is used to calculate these data, as the change in

prestige or wage can only be derived for immigrants who have held at least two jobs since their arrival. These tables provide two types of important descriptive information. First, they allow us to see the general percentage of immigrants whose prestige or wage increased, decreased, or remained the same between their first and most recent jobs in Canada. Second, the data allow one to determine whether those with a job match experience a different change in prestige and wage than those without a job match at the unit group level. Descriptive data in the form of the mean prestige score (Table 9.4) and mean logged wage (Table 9.6) for immigrants with and without a unit group job match are also discussed.

A cross-tabulation between the changes in immigrants' prestige scores and whether or not they obtained a job match since immigrating to Canada is represented below (Table 9.3). These data are beneficial for showing how an immigrant's status attainment (in the form of prestige score) differs from whether or not they have obtained a job match. Generally, the data show that similar percentages of immigrants experience an increase, a decrease, or no change in occupational prestige between their first job and most recent job. However, the percentage of immigrants who experience an increase in occupational prestige between jobs is slightly higher than the others at 38%. About 33% of immigrants experience no change in occupational prestige between their first and last jobs, while almost 30% experience a decrease in occupational prestige. These data indicate that there is no evidence indicating that immigrants primarily experience an increase in occupational prestige between jobs over time, as is typically expected in the work life of the general population.

The data also show that a large percentage (46.4%) of immigrants who have held at least two jobs in Canada and obtained a unit group job match experience no change in occupational prestige between their first and most recent jobs in Canada. This indicates that their first jobs are likely similar to their intended occupational prestige, but are not an exact match. About twenty-eight percent (28.2%) of immigrants with a unit group job match did experience an increase in occupational prestige between their first and most recent jobs. However, about one quarter (25.4%) of immigrants with a

unit group job match experience a decrease in occupational prestige between their first and most recent jobs in Canada.

Table 9.3: Cross-tabulation between Unit Group Job Match and Changes in Occupational Prestige Score

Change in Prestige Score	**Unit Group Job Match**		**No Unit Group Job Match**		**Total (Change in Prestige)**	
	Frequency	***Percent***	***Frequency***	***Percent***	***Frequency***	***Percent***
Increase	82	28.2	490	40.4	572	38.0
No Change	135	46.4	360	29.7	495	32.9
Decrease	74	25.4	363	29.9	437	29.1
Total (Job Match)	**291**	**100.0**	**1,213**	**100.0**	**1,504**	**100.0**

With respect to immigrants who do not obtain a job matching their intended occupation at the unit group level, a large percentage experience an increase in occupational prestige between their first and most recently held jobs in Canada (40.4%). Similar proportions of immigrants without a job match experience a decrease in occupational prestige (29.9%) or no change in their prestige (29.7%) between jobs. Thus, of those immigrants without a unit group job match, the largest proportion experiences an increase in occupational prestige between their first job and most recent job. Many of these immigrants also experience either an increase in occupational prestige or no change. This is an interesting finding as one would expect this type of trend primarily among those who obtain job matches. This is indicative of the separate nature of status attainment (prestige) and obtaining a job match. However, it does not indicate how the average prestige score of those with a job match compares to the average prestige score of those without a job match.

Descriptive data that indicate the average prestige scores for immigrants with and without a job match for both the full and restricted samples are presented below (Table 9.4). The data indicate that the average prestige score of immigrants with a job match in the full sample is about 6 points higher than those without a job match. In the restricted sample, the difference in the average prestige scores between those with and without a job match is almost 5 points. Therefore, although those without a job match largely experience an increase in prestige (as seen in Table 9.3), the prestige scores for those without a match are lower on average than those with a match, the majority of which experience either no change in their prestige between jobs or a decrease in prestige.

Table 9.4: Descriptive Data for Occupational Prestige: Immigrants With and Without a Unit Group Job Match – Full and Restricted Samples

	Full Sample		**Restricted Sample**	
	Job Match	***No Job Match***	***Job Match***	***No Job Match***
Mean Prestige Score	72.16	65.70	70.59	65.13
Standard Deviation	6.96	8.68	7.79	8.71
Total (Valid Cases)	**581**	**2,394**	**304**	**1,213**

A cross-tabulation between unit group job match and the change in logged wage between an immigrant's first job and most recent job in Canada follows (Table 9.5). The data indicate that the majority of immigrants (62.8%) experience an increase in wage between their first job and most recently held job. This suggests that, in terms of wages, immigrants who have held at least two jobs in Canada experience an increase of some sort in their incomes over time. About 33% of immigrants in the sample experience a decrease in wage between their first and most recent jobs; only a very small proportion of immigrants experience no change in their wage between jobs (4.3%).

Table 9.5: Cross-tabulation between Unit Group Job Match and Changes in Logged Wage

	Unit Group Job Match		No Unit Group Job Match		Total (Change in Wage)	
Change in Wage	***Frequency***	***Percent***	***Frequency***	***Percent***	***Frequency***	***Percent***
Increase	171	61.5	735	63.1	906	62.8
No Change	14	5.0	48	4.1	62	4.3
Decrease	93	33.5	381	32.7	474	32.9
Total (Job Match)	**278**	**100.0**	**1,164**	**100.0**	**1,442**	**100.0**

In general, similar percentages are found among those who obtained a unit group job match and those who did not. Slightly more than sixty percent (61.5%) of immigrants who held at least two jobs and obtained a job match acquire a higher wage in their most recent job than in their first job in Canada. However, 33.5% of immigrants with a job match experience a decrease in their wages between jobs, indicating that some immigrants do not obtain higher incomes over time despite obtaining employment in their intended occupations. As with the general immigrant population, a very small percentage of immigrants with a job match experience no change in wage between their first job and most recent job (5%). This small percentage is likely due to the fact that the wages compared are weekly wages in which fairly minute differences can count as a change in wage. If larger wage categories were employed for comparison there would likely be more immigrants falling into the "no change" category.

The majority of immigrants who did not obtain a unit group job match also experience an increase in their wages between their first and most recent jobs. Just over sixty-three percent (63.1%) of these immigrants obtain higher wages in their most recent job than in their first job. Only four percent of immigrants without a job match experience no change in their wages between jobs, while

about one third experience a decrease in wages between their first job and most recently held job (32.7%).

These data indicate that most immigrants experience some change in their wage, regardless of whether they obtain a job match. The majority experiences an increase in wages; however, this should not be interpreted as an indication of high wages or a large increase in wages, merely that most immigrants' wages increase to some extent when they move from one job to the next. In addition, as the data in Table 9.6 below show, the average wage of those immigrants with a job match is higher than those without a job match. This is true for both the full sample and the restricted sample. Therefore, in general, those with a job match obtain higher wages than those with no job match. This is an anticipated finding, as most immigrants arrive who under the "Skilled Worker" category intend to work in occupations that contribute to the "knowledge economy" in Canada. These occupations are thus more highly valued than other occupations in Canadian society and typically garner higher wages than most other types of occupations.

Table 9.6: Descriptive Data for Logged Wage: Immigrants With and Without a Unit Group Job Match – Full and Restricted Samples

	Full Sample		**Restricted Sample**	
	Job Match	***No Job Match***	***Job Match***	***No Job Match***
Mean	6.58	6.11	6.40	6.05
Standard Deviation	0.71	0.78	0.78	0.72

Greater proportions of immigrants experience an increase in occupational prestige scores and in their wages as opposed to a decrease or no change, as indicated in Tables 9.3 and 9.5 and Figures 9.1 and 9.2. A larger percentage of immigrants experience an increase in their wages than an increase in occupational prestige. As these two things represent very different concepts of employment success, one cannot make general conclusions based on the increases experienced in prestige and wage. That is,

while immigrants may be able to obtain an increase in their wage over time, the data indicate that fewer immigrants are able to obtain an increase in their occupational prestige, a measurement that is more closely related to social standing. Therefore, this lends support to the hypothesis that immigrants experience the process of social closure, preventing many immigrants from obtaining employment that is of higher social standing in terms of occupational prestige.

Model 9: Regression for Occupational Prestige of Most Recent Job in Canada

The following sections discuss the effects of ascribed and demographic characteristics (Model 9a) and human capital factors (Model 9b) on the occupational prestige scores of immigrants' most recently held jobs. A detailed table containing regression coefficients, significance levels, and standard errors can be found in Table 9.7. Further analysis of the results is discussed in Chapter Eleven.

Model 9a: Effects of Ascribed and Demographic Factors on the Occupational Prestige Score of Most Recent Job

Several ascribed and demographic variables have a significant effect of the occupational prestige score of an immigrant's most recently held job in Canada. All but two variables are statistically significant predictors of the prestige of an immigrant's most recent job. An interesting finding from these data is that visible minority status, a highly significant variable in previous models, is not a significant predictor of immigrants' occupational prestige scores. All other variables, with the exception of the "Provincial Nominee" admission class, are statistically significant predictors of prestige, to varying degrees.

Supporting the hypothesis regarding the relationship between age and employment success, the data show that for each one year increase in an immigrant's age, he or she can expect a decrease of about 0.16 prestige points in his or her most recently held job in Canada (b =0.156, $p<0.001$). This supports the hypothesis that older immigrants experience less employment success than younger immigrants in Canada. However, results regarding the "Sex" variable counter this research hypothesis. The data indicate that the occupational prestige score of a male immigrant is predicted to be almost one

TABLE 9.7: MODEL 9 - OLS Regression on Occupational Prestige of Most Recent Job

	Model 9a			Model 9b		
	b	**β**	**SE**	***b***	**β**	**SE**
Intercept	80.120***	—	1.546	74.237***	—	1.761
Sex	-0.854*	-0.041	0.387	-0.771*	-0.039	0.374
Age at Immigration	-0.156***	-0.122	0.026	-0.168***	-0.130	0.025
Visible Minority Status	-1.174	-0.059	0.653	-1.024	-0.052	0.614
C.M.A.	-1.411***	-0.068	0.367	-1.144**	-0.057	0.363
Region of Origin (North America=Reference Category)						
Africa	-3.402**	-0.117	1.295	-1.982	-0.069	1.495
Asia	-5.316***	-0.299	1.301	-3.666**	-0.207	1.236
Caribbean and Guyana	-5.905***	-0.121	1.584	-3.878**	-0.080	1.482
Europe	-4.652***	-0.215	1.168	-2.851*	-0.131	1.144
Middle East	-3.652*	-0.068	1.517	-2.169	-0.039	1.495
Oceania	-4.664*	-0.034	1.926	-2.848	-0.029	1.773
South and Central America	-3.710*	-0.076	1.926	-1.462	-0.029	1.442
Admission Class (Skilled Worker=Reference Category)						
Business	-1.790*	-0.027	0.816	0.611	0.009	0.890
Family	-3.138***	-0.079	0.763	-1.170	-0.030	0.731
Provincial Nominee	-3.172	-0.039	1.701	-1.860	-0.023	1.543
Refugee or Other	-7.223***	-0.079	1.154	-3.086**	-0.034	1.110
Level of Education (Bachelor's Degree= Reference Category)						
High School or Lower	—	—	—	-2.709***	-0.067	0.747
Some Trade/College/Univ.	—	—	—	-3.873***	-0.092	0.725
Trade/College Complete	—	—	—	-1.441**	-0.049	0.533
Master's Degree or Higher	—	—	—	2.209***	0.116	0.381
Language Proficiency						
English	—	—	—	0.063***	0.164	0.008
French	—	—	—	0.028***	0.099	0.006
Previous Experience	—	—	—	1.140***	0.062	0.345
Number of Jobs Held	—	—	—	-0.896***	-0.104	0.161

Notes:
Dependent Variable: Occupational Prestige Score of Immigrants' Most Recent Job in Canada
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and have held at least one job since immigrating
b=Unstandardized Regression Coefficient (based on bootstrap weights); β = Standardized Regression Coefficient; SE = Standard Error (based on bootstrap weights)
Sample Size: N=2,985; Model 9a: n= 2,969 ; Model 9b: n= 2,930
All coefficients and standard errors were estimated based on bootstrap weight = 1,001
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
R^2: Model 9a=0.05; Model 9b=0.12

point lower than a female immigrant (b=-0.854; p<0.05). Therefore, when all other ascribed and demographic variables are controlled, one can expect that the most recently held job of a female immigrant will have a slightly higher prestige score than that of a male immigrant. This finding is counter to my general hypothesis which assumes that male immigrants experience greater employment success in Canada than female immigrants. This finding may in part be due to the prestige scale itself as it tends to reward health occupations (generally a female-dominated field) much more than business occupations (generally a male-dominated field). In addition, the fact that very few women are represented in this sample compared to men may have an influence on this result. However, this finding is interesting as it indicates that immigrant women may obtain employment in Canada that is of higher social standing than immigrant men.

The findings also counter the hypothesis regarding the influence of living in a major CMA. The data indicate that immigrants who live in a major CMA have an occupational prestige score about 1.4 points lower than immigrants who live in other areas of Canada (b=-1.411, p<0.001). This further counters my original hypothesis which expects immigrants living in a major CMA to experience greater employment success than those living in other areas. Therefore, immigrants who live in Montreal, Toronto, or Vancouver can expect lower prestige scores than those who live elsewhere in Canada, even when other ascribed and demographic factors are controlled.

All of the regions of origin variables are statistically significant predictors of occupational prestige. Generally, when compared to immigrants who arrive from areas of North America, individuals from the Caribbean or Guyana and individuals from Asia are at the greatest disadvantage. Individuals who immigrate to Canada from the Caribbean or Guyana are predicted to have an occupational prestige score almost six points lower than an individual from North America (b =-5.905, p<0.001); those who arrive from Asian countries are predicted to have a prestige score about five points lower than those from North America (b=-5.316, p<0.001). To a lesser extent, individuals who arrive from the regions of Oceania and Europe also receive lower occupational prestige scores than immigrants who arrive from areas of North America (b=-4.664, p<0.05 and b=-6.652, p<0.001

respectively). Immigrants from South or Central America, the Middle East, and Africa also face a disadvantage when compared to individuals from North America, albeit to a lesser extent (b=-3.710, $p<0.05$; b=-3.652, $p<0.05$ and b=-3.402, $p=0.01$ respectively). Therefore, my general hypothesis that individuals from a traditional source region such as North America experience greater employment success than those from non-traditional source countries is largely supported by these findings.

The majority of immigrant admission class variables are also statistically significant when compared to the "Skilled Worker" category. The data indicate that those who arrive as refugees are at a particular disadvantage compared to those who arrive as skilled workers; immigrants in this category are predicted to have a prestige score that is more than 7 points lower than those in the "Skilled Worker" category (b=-7.223, $p<0.001$). Individuals who immigrate under the "Family" and "Business" classes also face a disadvantage when compared to skilled workers, although to a lesser extent than refugees (b=-3.138, $p<0.001$ and b=-1.790, $p<0.05$ respectively). Therefore, these data support my original hypothesis that immigrants who arrive under the "Skilled Worker" admission class experience greater employment success than immigrants who arrive under other admission class categories.

Model 9b: Effects of Human Capital Factors on the Occupational Prestige Score of Most Recent Job

The inclusion of human capital factors changes the statistical significance of some variables. Several of the regions of origin variables are no longer significant predictors of the occupational prestige score of an immigrant's most recent job in Canada, nor are most of the immigrant admission class variables. Therefore, significant differences between these groups are attributable to variations in human capital characteristics. Of those variables that remain statistically significant predictors of occupational prestige, the addition of human capital factors in the model decreases the magnitude of the estimates for almost all of them. Only the coefficient for age is greater when human capital factors are added, possibly because younger immigrants tend to be more highly educated. Visible minority status continues to be a non-significant predictor of prestige. In addition, all of the human capital variables are found to be highly significant predictors of immigrants' occupational prestige scores.

The coefficient for sex is only slightly smaller when human capital factors are controlled, but it continues to suggest that the predicted prestige score for male immigrants is almost 1 point lower than female immigrants (b= -0.771, $p<0.05$). Therefore, even when human capital factors are accounted for, the most recently held jobs of female immigrants are predicted to have slightly higher occupational prestige scores than male immigrants' most recently held jobs. Again, this finding counters my original hypothesis which anticipates that immigrant men experience greater employment success than immigrant women, possibly due to gender discrimination. However, as previously noted, this finding may be due to the prestige scale itself or an uneven distribution between men and women.

As mentioned above, the size of the coefficient for age actually increases slightly when one controls for human capital factors. The data indicate that, for every increase of one year in age, the occupational prestige score of an immigrant's most recent job decreases by about 0.2 points (b= -0.168, $p<0.001$). While this is a small effect, the cumulative effect of this when comparing older and younger immigrants is much larger. These results indicate that younger immigrants experience greater employment success (in terms of prestige scores) than older immigrants, supporting this research hypothesis.

The CMA variable continues to be a highly significant predictor of immigrants' occupational prestige. The inclusion of human capital variables slightly lessens the negative impact that living in a major CMA has on immigrants' prestige scores. The data indicate that immigrants who live in a major CMA are predicted to have an occupational prestige score about 1 point lower than immigrants who live elsewhere in Canada (b=-1.144, $p<0.01$). Again, this finding counters my initial hypothesis which expects immigrants who live in a major CMA to experience greater employment success than those who live elsewhere in Canada.

The regions of origin variables are largely affected by the addition of human capital variables. The "Africa", "Middle East", "Oceania", and "South or Central America" variables are no longer statistically significant predictors of prestige compared to immigrants who arrive from North American areas. Thus, the significant differences in occupational prestige for individuals from these regions are

attributable to variations in their human capital. The remaining region variables, "Asia", "Caribbean or Guyana", and "Europe" maintain their statistical significance; however, the magnitude of the coefficients of all three are lower when human capital variables are included in the model. Immigrants who arrive from the Caribbean or Guyana continue to suffer a large disadvantage when compared to individuals who arrive from areas of North America (b=-3.878, $p<0.01$). Immigrants from Asia are also predicted to have lower occupational prestige scores than those from North America (b=-3.666, $p<0.01$). The data also indicate that immigrants who arrive from Europe have a prestige score almost 3 points lower than those from North America (b=-2.851, $p<0.05$). Therefore, although individuals from Europe are still at a disadvantage when compared to individuals who arrive from areas of North America, they do not fare as badly as immigrants from other regions when human capital variables are controlled. Individuals from the Caribbean or Guyana and Asia are found to be at a particular disadvantage.

The immigrant admission class variables are also largely affected by the addition of human capital variables. The "Business" and "Family" variables are no longer statistically significant predictors of the occupational prestige scores of immigrants' most recently held jobs. In addition, the negative effect of immigrating under the "Refugee or Other" class is much smaller when human capital factors are included; immigrants represented in the "Refugee or Other" category are predicted to obtain a prestige score about 3 points lower than skilled workers in this model (b=-3.086, $p<0.01$). This result lends some support to my initial hypothesis that anticipates individuals who immigrate under the "Skilled Worker" class to experience greater employment success than immigrants who arrive under other admission classes.

With respect to the human capital factors entered in Model 9b, all of the levels of education variables are statistically significant predictors of prestige when compared to the "Bachelor's Degree" variable. The data indicate that immigrants with a high school diploma or lower can expect to have a prestige score almost 3 points lower than immigrants with a Bachelor's degree, while those with some trade school, college, or university education have predicted prestige scores almost 4 points lower than

those with Bachelor's degrees ((*b*=-2.709, p<0.001 and *b*=-3.873, p<0.001 respectively). Those who have graduated from either trade school or college programs are also predicted to have prestige scores almost one and a half points lower than Bachelor's degree holders (*b*=-1.441, p<0.01). The only level of education that receives higher occupational prestige scores than Bachelor's degree holders are those who hold Master's degrees or higher level degrees. An immigrant who holds a Master's degree or higher is predicted to have an occupational prestige score that is about 2 points higher than a Bachelor's degree holder (*b*=2.209, p<0.001). These results support the hypothesis and the general principles of human capital theory, suggesting that immigrants with higher levels of education experience greater employment success than those with lower levels of education in terms of occupational prestige.

The English and French language proficiency variables are also both highly significant predictors of immigrants' occupational prestige scores. For every increase of one in an immigrant's English language proficiency score, there is a corresponding increase of about 0.06 in his or her prestige score (*b*=0.063, p<0.001). A similar result is found for the French language proficiency variable (*b*=0.028, p<0.001). Being proficient in English has a slightly greater impact on occupational prestige than being proficient in French. Although these effects are slight, they indicate that immigrants who are highly proficient in English or French obtain jobs with higher occupational prestige scores than those with low proficiency in English or French. This is also anticipated by this research hypothesis. In addition, the "Previous Experience" variable is found to be a highly significant predictor of occupational prestige, indicating that immigrants with previous experience in their intended occupations obtain employment with prestige scores about one point higher than those without previous experience (*b*=1.140, p<0.001). This finding supports the hypothesis regarding previous work experience and also upholds the principles of human capital theory which predict that those with more work experience have greater employment success in Canada.

Lastly, the number of jobs an immigrant has held since immigration also has a statistically significant relationship with the occupational prestige of immigrants' most recently held jobs. The

data show that for every additional job an immigrant has held since arriving in Canada, the prestige score of his or her most recent job is predicted to decrease by almost one point (b=-0.896, $p<0.001$). Therefore, immigrants who have hold several jobs within their first two years in Canada have lower prestige scores than those who hold fewer jobs. This counters the general assumptions of human capital theorists who assert that the greater amount of work experience that one has, the greater labour market rewards (in this case, occupational prestige) he or she will receive over time. Therefore, this theory does not appear to hold for the immigrant population, at least during their first two years in Canada. In addition, this relationship may be due to the nature of these jobs as low-status "survival" jobs.

Of the significant variables in Model 9b, the standardized regression coefficients (β) indicate that the "Asia" variable has the highest, albeit negative, influence on the prestige scores than the other variables (β=-0.207). English language proficiency also has a relatively large influence on prestige compared to the other significant variables (β=0.164). The "Europe" variable and an immigrant's age have similar effects on the prestige score of an immigrant's most recent job (β=-0.131 and β=-0.130 respectively), while having a Master's degree or higher degree and the number of jobs an immigrant has held since immigrating have comparatively moderate effects (β=0.116 and β=0.104 respectively). Of the statistically significant variables in Model 9b, an immigrant's sex (β=-0.039) and immigrating under the "Refugee or Other" category (β=-0.034) have the smallest influence on occupational prestige.

Model 10: Regression for Logged Wage of Most Recent Job in Canada

The following sections discuss whether various ascribed or demographic characteristics (Model 10a) and human capital factors (Model 10b) are significant predictors of the wage of an immigrant's most recently held job. Detailed results indicating the significance levels, regression coefficients, and standard errors can be found in Table 9.8.

Model 10a: Effects of Ascribed and Demographic Factors on Wage of Most Recent Job

Several of the ascribed characteristics and demographic variables are statistically significant predictors of the logged wage of immigrants' jobs. Of note, sex is found to be highly significant. The data indicate that male immigrants obtain a significantly higher wage than female immigrants (b=0.345, $p<0.001$). This finding supports the theory that immigrant women experience gender discrimination in Canadian society and also lends support to the hypothesis that male immigrants experience greater employment success than female immigrants. These data also indicate that immigrants may experience racial discrimination in Canada. The predicted logged wages of immigrants' most recent jobs are lower for visible minorities than for non-visible minorities, lending further support to the hypothesis which anticipates that non-visible minority immigrants experience greater employment success in Canada than visible minority immigrants (b=-0.207, $p<0.01$).

Whether or not an immigrant lives in a major CMA is again a highly significant variable, indicating that where an immigrant lives has an impact on the wage of his or her most recent job. The data indicate that those who live in a major CMA (Montreal, Toronto, or Vancouver) obtain lower wages than those who live elsewhere in Canada (b=-0.147, $p<0.001$). As in previous models, this finding counters my original hypothesis which expects that immigrants living in a major CMA experience greater employment success than those who do not.

Several regions of origin are also statistically significant predictors of the wage of an immigrant's most recently held job in Canada when compared to immigrants who arrive from North America. Individuals who arrive from the Caribbean or Guyana face the greatest disadvantage in terms of wages when compared to immigrants who arrive from areas of North America (b=-0.535, $p<0.01$). However, those who immigrate to Canada from Middle Eastern countries, as well as African and Asian nations, face similar disadvantages in earnings compared to individuals from North America (b=-0.525, $p<0.01$; b=-0.492, $p<0.01$ and b=0.446, $p<0.05$ respectively). Immigrants who arrive in Canada from European nations are also predicted to receive lower wages than those who arrive from areas of

TABLE 9.8: Model 10 - OLS Regression on Logged Wage of Most Recent Job

	Model 10a			Model 10b		
	b	**β**	**SE**	***b***	**β**	**SE**
Intercept	6.779***	—	0.166	6.020***	—	0.181
Sex	0.346***	0.197	0.038	0.347***	0.194	0.037
Age at Immigration	-0.003	-0.031	0.002	-0.004*	-0.040	0.002
Visible Minority Status	-0.207**	-0.115	0.080	-0.197**	-0.111	0.074
C.M.A.	-0.147***	-0.079	0.034	-0.096**	-0.056	0.033
Region of Origin (North America=Reference Category)						
Africa	-0.492**	-0.193	0.173	-0.225	-0.110	0.172
Asia	-0.446*	-0.287	0.173	-0.243	-0.196	0.169
Caribbean and Guyana	-0.535**	-0.131	0.181	-0.327	-0.095	0.175
Europe	-0.419**	-0.215	0.148	-0.141	-0.100	0.147
Middle East	-0.525**	-0.109	0.196	-0.362	-0.081	0.190
Oceania	-0.388	-0.032	0.253	-0.244	-0.024	0.240
South and Central America	-0.286	-0.065	0.178	-0.047	-0.005	0.171
Admission Class (Skilled Worker=Reference Category)						
Business	-0.096	-0.012	0.164	0.110	0.018	0.143
Family	-0.161*	-0.045	0.072	-0.056	-0.017	0.079
Provincial Nominee	-0.191	-0.027	0.172	-0.184	-0.027	0.168
Refugee or Other	-0.435***	-0.055	0.078	-0.156	-0.019	0.090
Level of Education (Bachelor's Degree= Reference Category)						
High School or Lower	—	—	—	-0.011	-0.002	0.060
Some Trade/College/Univ.	—	—	—	-0.170*	-0.042	0.074
Trade/College Complete	—	—	—	-0.047	-0.020	0.047
Master's Degree or Higher	—	—	—	0.089*	0.056	0.037
Language Proficiency						
English	—	—	—	0.009***	0.245	0.001
French	—	—	—	0.001*	0.047	0.001
Previous Experience	—	—	—	0.037	0.027	0.031
Number of Jobs Held	—	—	—	-0.110***	-0.135	0.015

Notes:
Dependent Variable: Logged Wage of Immigrants' Most Recent Job in Canada
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and have held at least one job since immigrating
B = Unstandardized Regression Coefficient; β = Regression Coefficient; SE = Standard Error
Sample Size: N=2,985; Model 10a: n= 2,626 ; Model 10b: n= 2,593
All coefficients and standard errors were estimated based on bootstrap weight = 1,001
Statistical significance: * p<0.05; ** p<0.01; *** p<0.001
R^2: Model 10a=0.07; Model 10b=0.15

North America (b=-0.419, p<0.01). Therefore, these results generally support the hypothesis that immigrants from traditional source regions such as North America experience greater employment success than those from non-traditional source regions.

Two of the immigrant admission class variables are also statistically significant predictors of the logged wages of immigrants' most recent jobs. The results show that immigrants who are represented by the "Refugee or Other" category are predicted to have lower wages than immigrants represented by the "Skilled Worker" category (b=-0.435, p<0.001). Immigrants who arrive under the "Family" category are also at a disadvantage when compared to skilled workers, although to a lesser extent (b=-0.161, p<0.05). These results support the hypothesis that immigrants who enter Canada under the "Skilled Worker" class experience greater employment success than those who arrive under other admission classes.

Model 10b: Effects of Human Capital Factors on the Logged Wage of Most Recent Job

The inclusion of human capital factors changes the statistical significance of several variables. While age becomes a significant predictor of logged wage when education, language proficiency, and previous work experience are controlled, several of the regions of origin variables lose statistical significance. The "Africa", "Asia", and "Europe" variables are no longer significant, indicating that the disadvantages that immigrants from these regions experience are explained by variations in their human capital. In addition, the two admission class variables that are significant predictors of wage in Model 10a are no longer significant in this model. Again, this suggests that the lower wages experienced by immigrants in these categories (as compared to skilled workers) are explained by differences in human capital.

Sex remains a highly significant predictor of wage when human capital variables are controlled; the magnitude of the coefficient for sex increases when these are included in the model. The data show that male immigrants have significantly higher wages than female immigrants (b=0.347, p<0.001). Again, this finding supports the hypothesis which anticipates greater employment success for male immigrants than for female immigrants. This also continues to support the notion that gender

discrimination exists within the employment process of immigrants. The data also lend further support to this research hypothesis and subsequently to the theory that racial discrimination may be encountered by some groups of immigrants, as visible minority immigrants obtain significantly lower wages than non-visible minority immigrants in their most recent jobs (b=-0.197, $p<0.01$). The effect of visible minority status decreases slightly from Model 10a, indicating that when human capital factors are accounted for the negative impact of being a visible minority is lessened somewhat.

The CMA variable also continues to be a statistically significant predictor of the logged wages of immigrants' most recent jobs in Canada. Individuals who immigrate to a major CMA are predicted to obtain lower wages than immigrants who live in other areas of Canada, even when human capital factors are controlled (b=-0.096, $p<0.01$). This finding continues to oppose this research hypothesis regarding the CMA variable which assumes that immigrants living in a major CMA experience greater employment success than immigrants who live in other areas.

Although the sex, visible minority status, and CMA variables remain significant predictors of wage, age becomes a statistically significant predictor in this model. The data indicate that when variations in immigrants' human capital are controlled, older immigrants are predicted to obtain significantly lower wages than younger immigrants (b=-0.004, $p<0.05$). This result supports the hypothesis regarding age: younger immigrants experience greater employment success in Canada than older immigrants (in this case with respect to wages).

Some of the education variables are also statistically significant predictors of immigrants' wages when compared to immigrants who hold Bachelor's degrees. The data show that immigrants who have some trade school, college, or university education obtain lower wages than immigrants with Bachelor's degrees (b=-0.170, $p<0.05$). By contrast, immigrants who have a Master's degree or higher are predicted to obtain higher wages than those with a Bachelor's degree (b=0.089, $p<0.05$). These findings support the principles of human capital theory which, indicating a positive relationship between level of education attained and earnings. The English and French language proficiency variables are also significant predictors of immigrants' wages. The data indicate that the higher one's

English or French language proficiency score, the higher his or her predicted wage (b=0.009, p<0.001 and b=0.001, p<0.05 respectively). These findings also support the hypothesis that the higher an immigrant's language proficiency in English or French, the greater his or her employment success in Canada.

The number of jobs an immigrant has held since arriving in Canada also has a statistically significant and negative relationship with the wage of an immigrant's most recent job. The data indicate that for every additional job an immigrant holds in Canada, the wage of his or her most recently held job decreases (b=-0.110, p<0.001). This finding negates the principles of human capital theory which assume that the greater amount of work experience an individual has within the labour market, the greater rewards he or she will obtain over time. Again, this finding indicates that this aspect of human capital theory is not applicable to the immigrant population in terms of wages, at least within their first two years in Canada.

In terms of the general influence that the statistically significant variables have on immigrants' wages, the standardized regression coefficients indicate that English language proficiency has the largest influence (β=0.245), followed by an immigrant's sex (β=0.194). The negative impact that the total number of jobs an immigrant has held since arriving in Canada is also found to be a relatively influential variable in this model (β=-0.135). Of the significant variables, visible minority status is fairly influential in predicting immigrants' wages compared to other variables in the model (β=0.111), while whether or not an immigrant lives in a major CMA and holding a Master's degree or higher have smaller influences on predicting wage (β=-0.056 and β=0.056 respectively).

Models 11 and 12: Discussion of the Sample and Modeling

Model 11 and Model 12 measure the occupational prestige and logged wage of immigrants' most recent jobs in Canada respectively, controlling for the effects of the occupational prestige scores and logged wages of immigrants' first jobs. In controlling for the prestige and wage of immigrants' first jobs, these models allow one to determine what factors may have an influence on the change in occupational prestige scores or wages between immigrants' first and most recent jobs. Therefore, the

following models use the same set of variables that are entered in Models 9 and 10, but also control for the effect that the occupational prestige score of an immigrant's first job has on the prestige of his or her most recent job (Model 11) and the effect that the wage of an immigrant's first job has on the wage of his or her most recent job (Model 12). Thus, these models provide an indication of the factors that influence the mobility of immigrants within this cohort akin to examining intra-generational mobility.

The sample that is used for Models 11 and 12 is smaller, as only those immigrants who have held two or more jobs are included. This decreases the sample size from 2,985 (in Models 9 and 10) to 1,514, a loss of almost half of the sample. The sample for Models 11 and 12 include only those immigrants who have held at least two jobs in Canada, as those who have only held one job would represent a large portion of the sample with no variation in occupational prestige or wage. Therefore, an accurate sense of what factors influence the change in prestige or wage that is experienced between immigrants' first and most recent jobs could not be obtained. As with the previous models, the discussion of these models primarily centres on reporting the significant results. Further elaboration and analysis of these results can be found in Chapter Eleven.

Model 11: Regression for the Change in Immigrants' Occupational Prestige

The following sections discuss results from Table 9.9 which represent the effects that the occupational prestige of an immigrant's first job has on the occupational prestige score of his or her most recent job (Model 11a), followed by a discussion of the effects of ascribed and demographic characteristics (Model 11b) and human capital factors (Model 11c) on the upward mobility between immigrants' first and most recent jobs in terms of occupational prestige scores.

Model 11a: Effect of the Prestige of First Job on the Prestige of Most Recent Job

The first model measures the effect that the occupational prestige score of an immigrant's first job has on the prestige score of his or her most recent job in Canada. As expected, the prestige of an immigrant's first job in Canada is a significant predictor of the prestige of his or her most recent job. The data indicate that, for every increase of one in the occupational prestige score of an immigrant's first job, the occupational prestige of his or her most recent job increases by about 0.3 points (b=0.327,

TABLE 9.9: MODEL 11 - OLS REGRESSION ON THE CHANGE IN IMMIGRANTS' OCCUPATIONAL PRESTIGE BETWEEN THEIR FIRST AND MOST RECENT JOBS

	Model 11a			Model 11b			Model 11c		
	b	**β**	**SE**	***b***	**β**	**SE**	***b***	**β**	**SE**
Intercept	42.882***	—	1.770	54.970***	—	3.952	54.359***	—	4.263
Prestige of First Job	0.359***	0.363	0.027	0.327***	0.331	0.028	0.295***	0.301	0.029
Sex	—	—	—	-1.008	-0.049	0.536	-0.961	-0.048	0.526
Age at Immigration	—	—	—	-0.089*	-0.070	0.037	-0.109**	-0.082	0.037
Visible Minority Status	—	—	—	0.149	0.008	0.863	0.191	0.009	0.856
C.M.A.	—	—	—	-0.644	-0.029	0.187	-0.528	-0.026	0.496
Region of Origin (North America=Reference Category)									
Africa	—	—	—	-4.201	-0.144	2.596	-3.904	-0.133	2.670
Asia	—	—	—	-5.970*	-0.334	2.618	-5.496*	-0.307	2.690
Caribbean and Guyana	—	—	—	-6.908*	-0.156	2.757	-6.077*	-0.136	2.797
Europe	—	—	—	-5.156*	-0.235	2.503	-4.589	-0.206	2.587
Middle East	—	—	—	-5.330	-0.088	2.833	-3.920	-0.064	2.954
Oceania (including Australia)	—	—	—	-4.304	-0.024	3.120	-2.458	-0.017	3.035
South and Central America	—	—	—	-3.406	-0.072	2.744	-2.725	-0.055	2.794
Admission Class (Skilled Worker=Reference Category)									
Business	—	—	—	1.504	0.017	1.455	3.018	0.032	1.577
Family	—	—	—	-2.741**	-0.067	1.046	-1.569	-0.039	1.063
Provincial Nominee	—	—	—	-3.753	-0.045	2.468	-2.499	-0.030	2.339
Refugee or Other	—	—	—	-2.048	-0.018	1.913	-0.202	-0.002	1.686
Level of Education (Bachelor's Degree= Reference Category)									
High school Diploma or Lower	—	—	—	—	—	—	-1.861	-0.044	1.000
Some Trade/College/University	—	—	—	—	—	—	-2.803**	-0.062	0.941
Trade School or College Complete	—	—	—	—	—	—	-1.146	-0.040	0.691
Master's Degree or Higher	—	—	—	—	—	—	1.614**	0.084	0.535

TABLE 9.9 Continued

	Model 11a			Model 11b			Model 11c		
	b	**β**	**SE**	***b***	**β**	**SE**	***b***	**β**	**SE**
Language Proficiency									
English	—	—	—	—	—	—	0.027*	0.068	0.011
French	—	—	—	—	—	—	0.020*	0.071	0.008
Previous Experience	—	—	—	—	—	—	0.366	0.020	0.481
Number of Jobs Held	—	—	—	—	—	—	-0.032	-0.003	0.241

Notes:
Dependent Variable: Occupational Prestige of Immigrants' Most Recent Job in Canada
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and have held at least two jobs since immigrating
b = Unstandardized Regression Coefficient; β = Regression Coefficient; SE = Standard Error
Sample Size: N=1,514; Model 11a: n= 1,504 ; Model 11b: n= 1,499 ; Model 11c: n= 1,483
All coefficients and standard errors were estimated based on bootstrap weight = 1,001
Statistical significance: * $p<0.05$; ** $p<0.01$; *** $p<0.001$
R^2: Model 11a=0.13; Model 11b=0.16; Model 11c=0.17

$p<0.001$). Although this is a small effect, the data indicate that the relationship between the prestige score of an immigrant's first job has a highly significant effect on the prestige score of his or her most recent job.

Model 11b: Effects of Ascribed and Demographic Factors on the Change in Prestige

Several ascribed and demographic variables are significant predictors of the change in immigrants' occupational prestige scores. While sex, visible minority status, and whether or not an immigrant lives in a major CMA are not statistically significant, age does have a significant and negative relationship with the change in immigrants' occupational prestige between their first and most recent jobs (b=-0.089, $p<0.05$). This finding indicates that older immigrants experience less upward mobility between jobs than younger immigrants, lending further support to my original hypothesis that younger immigrants experience greater employment success than older immigrants.

Three of the regions of origin variables are also statistically significant. When controlling the effect of the prestige scores of immigrants' first jobs and other ascribed and demographic variables, the data show that immigrating to Canada from Asia, the Caribbean or Guyana, or Europe all have a significant and negative influence on the change that these individuals experience in their prestige scores between jobs (b=-5.970, $p<0.05$; b=-6.908, $p<0.05$ and b=-5.156, $p<0.05$ respectively). Individuals who arrive from the Caribbean or Guyana are at the greatest disadvantage compared to those from North American areas, although immigrants from all of these areas experience less upward mobility in their occupational prestige scores than do immigrants from North America. These results support the hypothesis regarding regions of origin as they indicate that individuals who immigrate to Canada from non-traditional source regions such as Asia or the Caribbean or Guyana experience less employment success than those from traditional source regions such as North America. While individuals from Europe are at a disadvantage compared to those who arrive from North American areas, they do not fare as badly as those from Asia or the Caribbean or Guyana. This finding supports my original hypothesis; however, it also calls into question the advantage that Europeans have been

found to have over other immigrants in Canada historically. This will be discussed further in Chapter Eleven.

The last set of variables, immigrant admission classes, indicates that only one admission class is a statistically significant predictor of the change in immigrants' prestige scores between jobs. Immigrants who arrive under the "Family" class have an occupational prestige score in their most recent job that is almost 3 points lower than those who arrive under the "Skilled Worker" class when the prestige scores of their first jobs are controlled (b=-2.741, $p<0.01$). This finding supports my initial hypothesis regarding the effect of admission class, indicating that individuals who immigrate to Canada as skilled workers will have greater employment success than those who arrive under other admission classes.

Model 11c: Effects of Human Capital Factors on the Change in Immigrants' Occupational Prestige

The addition of human capital variables changes the statistical significance of some variables. Of the regions of origin variables, "Europe" is no longer a significant predictor of the change in an immigrant's occupational prestige between their first and most recent jobs. Also, the "Family" class variable is no longer significant, indicating that when education, language proficiency, and previous experience are accounted for, arriving under the "Family" admission class not a significant predictor of an immigrant's mobility compared to those in the "Skilled Worker" class. Of the ascribed and demographic variables, age continues to be a highly significant predictor of the change in an immigrant's occupational prestige score. The magnitude of the coefficient for age is slightly larger than in Model 11b and indicates that older immigrants experience less upward mobility in terms of their occupational prestige than younger immigrants (b=-0.109, $p<0.01$). Again, this finding supports the hypothesis that younger immigrants experience greater employment success than older immigrants.

With respect to the regions from which individuals emigrate, arriving in Canada from Asia or the Caribbean or Guyana remain statistically significant predictors of the occupational prestige of an immigrant's most recent job (b=-6.077, $p<0.05$ and b=-5.496, $p<0.05$ respectively). The coefficients for these regions are both slightly lower when human capital factors are controlled, but continue to

indicate that individuals who arrive from Asia or the Caribbean or Guyana face a disadvantage when compared to those from North America. Again, these results support the hypothesis which predicts that immigrants from non-traditional source regions experience lower employment success than those from more traditional source regions.

With respect to human capital factors, two levels of education and the English and French language proficiency variables are statistically significant. However, whether or not an immigrant has previous work experience and the number of jobs he or she has held since immigrating are not significant predictors of the change in immigrants' occupational prestige scores between jobs. The results indicate that an immigrant who has some trade school, college, or university education has significantly less mobility between jobs than an immigrant who holds a Bachelor's degree (b=-2.803, $p<0.01$). However, an immigrant who holds a Master's degree or higher experiences a greater degree of upward mobility with respect to a change in prestige scores between jobs than an immigrant with a Bachelor's degree (b=1.614, $p<0.01$). Therefore, having higher levels of education may allow immigrants to obtain jobs with higher prestige scores than those with lower levels of education, even if they are not employed in their intended occupations. These findings support my initial hypothesis and human capital theory which is in part based on the assumption that the higher one's credentials, the greater rewards he or she receives in the labour market over time.

Both of the official language proficiency variables have statistically significant and positive relationships with the change in immigrants' occupational prestige scores between their first and most recent jobs in Canada. The higher an immigrant's English or French language proficiency, the greater the increase in occupational prestige between jobs (b=0.027, $p<0.05$ and b=0.020, $p<0.05$ respectively). These results continue to support the hypothesis regarding the effect of English or French language proficiency on immigrants' employment success – the higher one's proficiency in an official language, the greater his or her employment success in Canada.

In Model 11c, arriving in Canada from Asia is found to be the most influential variable in predicting changes in immigrants' prestige between jobs (β=-0.307), followed closely by the prestige

of an immigrant's first job (β=0.301). To a lesser degree, the impact of the "Caribbean or Guyana" variable is also influential compared to the other significant variables (β=-0.136), although less so than the "Asia" variable. Holding a Master's degree or higher and an immigrant's age also have comparatively moderate influences on predicting the change in immigrants' occupational prestige between jobs (β=0.084 and β=-0.082 respectively). The English and French language proficiency variables (β=0.068 and β=0.071respectively) as well as the "Some Trade School, College, or University" (β=-0.040) variable are found to have the weakest influences when predicting prestige in Model 11c.

Model 12: Regression for the Change in Immigrants' Logged Wages

The following sections discuss results from Table 9.10 which present coefficients indicating the relationship that the wage of an immigrant's first job has with the wage of his or her most recent job (Model 11a). This is followed by discussions of the influence that ascribed and demographic characteristics (Model 11b) and human capital factors (Model 11c) have on the upward mobility immigrants experience between their first and most recent jobs in terms of logged wages.

Model 12a: Effect of the Logged Wage of First Job on the Logged Wage of Most Recent Job

The wage of an immigrant's first job is a highly significant predictor of the wage of his or her most recent job. Thus, the higher the wage of an immigrant's first job, the higher the wage of his or her most recent job (b=0.318, $p<0.001$). This result is in accordance with human capital theory which assumes that individuals experience upward mobility (in terms of earnings) as they move from one job to another due to an accumulation of relevant experience.

Model 12b: Effects of Ascribed and Demographic Factors on the Change in Immigrants' Logged Wages

The addition of ascribed and demographic factors does not change the impact that the wage of an immigrant's first job has on the wage of his or her most recent job, although the coefficient is slightly smaller in this model (b=0.292, $p<0.001$). Only one of the ascribed and demographic factors is statistically significant in this model. While none of the regions of origin or admission class categories

TABLE 9.10: MODEL 12 - OLS Regression on the Change in Logged Wages Between First and Most Recent Jobs

	Model 12a			Model 12b			Model 12c		
	b	**β**	**SE**	***b***	**β**	**SE**	***b***	**β**	**SE**
Intercept	4.209***	—	0.041	4.442***	—	0.351	4.228***	—	0.371
Logged Wage of First Job	0.318***	0.292	0.246	0.292***	0.270	0.040	0.278***	0.254	0.040
Sex	—	—	—	0.223***	0.127	0.052	0.225***	0.133	0.003
Age at Immigration	—	—	—	-0.002	-0.028	0.003	-0.065	-0.037	0.119
Visible Minority Status	—	—	—	-0.087	-0.037	0.121	0.194	-0.036	0.856
C.M.A.	—	—	—	-0.035	-0.010	0.047	0.000	0.000	0.046
Region of Origin (North America=Reference Category)									
Africa	—	—	—	-0.066	-0.036	0.263	-0.032	-0.013	0.260
Asia	—	—	—	-0.051	-0.046	0.263	-0.011	-0.007	0.267
Caribbean and Guyana	—	—	—	-0.263	-0.077	0.272	-0.215	-0.059	0.271
Europe	—	—	—	-0.012	0.001	0.289	0.080	0.042	0.233
Middle East	—	—	—	-0.449	-0.084	0.268	-0.364	-0.067	0.297
Oceania	—	—	—	0.231	0.034	0.510	0.476	0.037	0.492
South and Central America	—	—	—	0.056	0.011	0.273	0.158	0.038	0.271
Admission Class (Skilled Worker=Reference Category)									
Business	—	—	—	0.070	0.008	0.197	0.118	0.011	0.202
Family	—	—	—	0.043	0.015	0.109	0.110	0.033	0.118
Provincial Nominee	—	—	—	-0.463	-0.068	0.301	-0.439	-0.066	0.310
Refugee or Other	—	—	—	-0.205	-0.023	0.113	-0.103	-0.012	0.129
Level of Education (Bachelor'sDegree= Reference Category)									
High School or Lower	—	—	—	—	—	—	-0.017	-0.005	0.094
Some Trade/College/University	—	—	—	—	—	—	-0.091	-0.024	0.102
Trade School or College Complete	—	—	—	—	—	—	0.031	0.013	0.061
Master's Degree or Higher	—	—	—	—	—	—	0.115*	0.072	0.048

TABLE 9.10 Continued

	Model 12a			Model 12b			Model 12c		
	b	**β**	**SE**	***b***	**β**	**SE**	***b***	**β**	**SE**
Language Proficiency									
English	—	—	—	—	—	—	0.003***	0.107	0.001
French	—	—	—	—	—	—	0.001	0.051	0.001
Previous Experience	—	—	—	—	—	—	-0.010	-0.006	0.045
Number of Jobs Held	—	—	—	—	—	—	-0.025	-0.031	0.023

Notes:
Dependent Variable: Occupational Prestige of Immigrants' Most Recent Job in Canada
Sample represents respondents between ages 25-64 who stated an intended occupation prior to immigration and have held at least two jobs since immigrating
b = Unstandardized Regression Coefficient; β = Unstandardized Regression Coefficient; β = Regression Coefficient; SE = Standard Error
Sample Size: N=1,514; Model 12a: n=1,299; Model 12b: n=1,295 ; Model 12c: n=1,282
All coefficients and standard errors were estimated based on bootstrap weight = 1,001
Statistical significance: * $p<0.05$; ** $p<0.01$; *** $p<0.001$
R^2: Model 12a=0.08; Model 12b=0.12; Model 12c=0.13

are significant, sex is a highly significant predictor of the change in immigrants' wages. The data indicate that immigrant men experience greater upward mobility than immigrant women (b=0.223, $p<0.001$). This finding supports the hypothesis that male immigrants experience greater employment success than female immigrants (in this case, in terms of upward mobility in wages). Interestingly, none of the other ascribed and demographic variables that are significant predictors of wage in Model 10 are significant predictors of the change in immigrants' wages between their first and most recent jobs in Canada.

Model 12c: Effects of Human Capital Factors on the Change in Immigrants' Logged Wages

When human capital factors are controlled there are no changes in the statistical significance of variables that predict the change in immigrants' wages. Age, visible minority status, whether or not one lives in a major CMA, regions of origin, and immigrant admission class all remain non-significant predictors of the change in immigrants' wages in this model. However, sex continues to be highly significant, indicating that male immigrants have a significantly larger and positive change in their wages over time when human capital factors are controlled (b=0.225, $p<0.001$). Again, this supports the hypothesis that male immigrants experience greater employment success than female immigrants and is further indication that immigrant women may experience gender discrimination within the Canadian labour market.

Only two of the human capital variables are statistically significant predictors of the change in immigrants' wages between jobs. One of the levels of education variables, "Master's Degree or Higher", is a significant predictor of the change in immigrants' wages. The data indicate that immigrants who hold Master's degrees or higher experience greater upward mobility in terms of their wages than immigrants who hold Bachelor's degrees only (b=0.115, $p<0.05$). This finding supports my original hypothesis which anticipates that the higher an immigrant's level of education, the higher his or her income in Canada. This is also in accordance with human capital theory.

In addition, only one of the two language proficiency variables is statistically significant in this model. The results reveal that the higher immigrant's English language proficiency score, the greater

increase in wages he or she experiences between jobs (b=0.003, p<0.001). This result supports my original research hypothesis. That is, the higher an immigrant's English language proficiency score, the greater employment success he or she will have. In contrast, French language proficiency is not found to be a statistically significant predictor of the change in immigrants' wages between jobs. The result for the English language proficiency variable further supports this research hypothesis that proficiency in an official language will translate into greater employment success for immigrants to Canada.

An examination of the standardized regression coefficients for Model 12c indicates that the "Logged Wage of First Job" variable is the most influential predictor of the statistically significant variables (β=0.254). Both sex and English language proficiency have a moderate influence on predicting the change in immigrants' wages between jobs (β=0.133 and β=0.107 respectively). The education variable "Master's Degree or Higher" is the least influential variable of those that are statistically significant in Model 12c (β=0.072).

Summary

The descriptive data in this chapter indicate that the average prestige scores and wages of immigrants in the restricted sample (i.e. those who have held at least two jobs since arrival) are slightly lower than in the full sample. In addition, the average prestige score and the average wage of immigrants who have received a job match in their first two years in Canada are higher than the average prestige score and wage for those without a job match; this is true for both the full and restricted sample.

Data are also presented regarding the type of change in immigrants' occupational prestige scores and wages. Different trends are revealed in these data. Similar percentages of immigrants who have held at least two jobs experience an increase, decrease, or no change in their prestige scores between jobs. The descriptive data also show that almost half of immigrants who obtain a job match at the unit group level experience no change in their occupational prestige scores between jobs, while only about 20% of immigrants with a job match experience an increase in occupational prestige between jobs. However, the majority of immigrants did experience an increase in their weekly wages between their first and most recent jobs in Canada. Although one third of immigrants who have held

two or more jobs experience a decrease in their wages between jobs, very few experience no change in wage.

Chapter Nine primarily concentrates on the regression analyses presented in Models 9, 10, 11, and 12. These models examine the effects of ascribed, demographic, and human capital factors on the occupational prestige scores and the logged weekly wages of immigrants to Canada. In an effort to get a sense of the change in prestige and wage between immigrants' first and most recent jobs, two regression models that control for the effect of the occupational prestige of an immigrant's first job (Model 11) or the wage of an immigrant's first job (Model 12) are also discussed. The results of these models are varied. The model that measures the change in immigrants' prestige scores provides more explainable mobility than the change model for wage.

In general, both of the prestige models (Models 9 and 11) indicate that an immigrant's age is a highly significant predictor of the occupational prestige score of his or her most recent job. In addition, both models reveal that immigrants who arrive in Canada from Asia or the Caribbean or Guyana obtain occupations with lower occupational prestige scores than immigrants who arrive from areas of North America. In terms of education, immigrants who have a Master's degree or a higher level degree have higher occupational prestige scores and greater upward mobility between jobs than immigrants with a Bachelor's degree only. High levels of proficiency in English or French also put immigrants at an advantage over those with lower levels of proficiency with respect to occupational prestige scores.

Only three variables are statistically significant predictors of wage in both models. Very few variables maintain their statistical significance in the change model for wage (Model 12). However, the data show that an immigrant's sex is a highly significant predictor of wage: immigrant men experience greater employment success in terms of higher wages than immigrant women. The results from Models 10 and 12 also indicate that holding a Master's degree or higher degree has a positive influence on the wage of immigrants' most recent jobs and the change in their wages between jobs compared to

those who hold a Bachelor's degree only. English language proficiency also has a positive, significant relationship with the measurement of wage in both models.

Overall, the data in Chapter 9 indicate that the prestige scores and wages of immigrants' most recently held jobs depend on several different factors. When the occupational prestige scores and logged wages of immigrants' first jobs are controlled (i.e. the "change" models), some variables, such as the number of jobs an immigrant has held, are no longer statistically significant predictors. Generally, only two variables are found to be statistically significant predictors of immigrants' occupational prestige and wage across all models: English language proficiency and having a Master's degree or higher. Of the ascribed and demographic variables, sex is a highly significant predictor of immigrants' wages while age is highly significant in the occupational prestige models. Visible minority status is only a significant predictor of the wage of an immigrant's most recent job in the full sample (Model 10).

The differences in these results point, in part, to the variations in what these two concepts represent. That is, while occupational prestige scores allow for a measurement that is more closely related to the *social* standing of an immigrant's occupation, wage gives an indication of the relative *financial* standing of one's occupation to that of others. Therefore, it is not surprising that these models elicit some very different findings in terms of which factors are significant predictors of these distinct dimensions of immigrants' employment success. Further analysis of these findings is provided in the "Discussion of Findings" chapter (Chapter Eleven).

Chapter Ten

Case Study of Engineers

The following chapter examines one group of immigrants in more depth: immigrants whose intended occupation is in the field of engineering. While my initial plan was to focus this case study on those who intend to work as physicians in Canada, this was not a feasible group to study. Although they are a group of interest in the media, the number of immigrants who intend to work as physicians in this sample is quite small and not amenable to these analyses. However, it is interesting to note that there is a far greater proportion of immigrants in the sample who intend to work as engineers than as physicians in Canada.

Immigrants who intend to work as engineers are also a group of interest among the immigrant population. This is primarily due to two factors: (a) immigrants trained as engineers are considered skilled workers who are sought after in order to contribute to the "knowledge economy" and (b) these individuals are subject to licensing and regulations in order to practice in Canada. Thus, this case study provides some insight into factors that influence the likelihood of a job match and the prestige scores and wages of immigrants seeking employment in a regulated occupation. Previous research suggests that accreditation requirements for foreign engineers impact their employment success in Canada (Boyd and Schellenberg, 2007).

Many engineering professions in Canada are required to obtain a Bachelor's degree in engineering from a university accredited by Engineers Canada (formerly the Canadian Council of Professional Engineers) (Engineers Canada, 2008; Professional Engineers of Ontario, 2008). In the case of immigrants, equivalent qualifications from foreign universities are assessed against Engineers Canada's criteria, based on the specific engineering discipline for which an individual seeks licensing. Immigrants whose qualifications are not in accordance with these criteria are required to write technical exams which confirm their academic training and test any deficiencies they may have in the knowledge required for working in their field of engineering (Professional Engineers of Ontario, 2008). In addition, there is a difference between obtaining a licence to practice engineering and

obtaining the designation of "Professional Engineer". In order to gain the designation of "Professional Engineer" (P.Eng) in Canada, individuals must also fulfill four years of work experience under a professional engineer and pass an exam which addresses professional practice, ethics, engineering law, and liability issues (Engineers Canada, 2008; Professional Engineers of Ontario, 2008). Therefore, individuals can obtain employment as engineers in Canada prior to becoming professional engineers if they are licensed and a licensed professional engineer takes responsibility for their work (Engineers Canada, 2008). In the case of immigrants, they must spend at least one year practicing in Canada prior to obtaining their "P.Eng" designation in order to become exposed to Canadian engineering codes, legislation, and technical standards and regulations (Professional Engineers of Ontario, 2008). According to Engineers Canada (2008) immigrants who intend to work as engineers in Canada should be prepared to spend a year or more searching for employment in the engineering field. Therefore, considering that the data employed in this study cover respondents' first two years in Canada, it is likely that these individuals had the opportunity to search for jobs in their field and possibly gain some Canadian work experience. However, it is less likely that those immigrants who did obtain employment in their intended occupation have been able to fulfill the requirement of one year of Canadian work experience to gain a "Professional Engineer" designation.

Due to the fact that this case study focuses on a specific occupational field, the sample size is much smaller than the samples used in the previous models. Other differences between the samples and statistical models for this case study and the wider sample of immigrants used previously also affect direct comparisons between the two samples. However, a discussion of findings in both samples that support or counter the hypotheses will be addressed.

Several of the differences between the engineer sample and the larger sample can be found in the logistic regression model (Model 13). First, the logistic regression model presented in this chapter focuses only on whether or not a job match occurred at the unit group level. This limitation is imposed because the primary interest for this case study focuses on whether immigrants intending to work as engineers find employment within their specific occupation of interest within this field. In addition,

the occupational characteristics module is excluded from these statistical models as most of these variables are constant or provide very little variation between respondents. This is due to the similarities in job tasks and socio-economic status scores for various engineering occupations (refer to Appendix F for a complete list of engineering occupations included for these analyses). Further, some other variables are re-categorized, in part due to the small sample size. As the descriptive data discussed below indicate, the majority of immigrants who state engineering as their intended occupations arrive in Canada from either Europe or Asia. Therefore, only three regions of origin variables are entered in these models: Europe, Asia, and "Other Region" which consists of the regions of Africa, Caribbean or Guyana, Central or South America, Middle East, North America, and Oceania. "Europe" is used as the reference category as it is the region that is most representative of a traditional source region. In addition, the vast majority of immigrants who intend to work as engineers immigrate under the "Skilled Worker" admission class; therefore only two categories are represented for the "Immigrant Admission Category" factor. This is entered into the model as a dummy variable (i.e. "Skilled Worker" or "Other").

The education variables are also slightly different due to the characteristics of immigrants who intend to work as engineers. Since most engineering professions require at minimum a Bachelor's degree, the education variables are more specific than in previous models and include those who have a Bachelor's degree only, a Master's degree or other professional degree, or a Doctorate degree. Due to the fact that a few cases have different levels of education (e.g. College Diploma), a fourth variable called "Other Education" is included to capture all of the cases. However, it is assumed that these individuals plan to pursue further education in Canada prior to seeking employment as an engineer. In addition, the number of jobs an immigrant has held since immigrating is included in the human capital module to gain a sense of whether immigrants who hold numerous jobs in Canada ultimately have greater employment success.

Limitations of this sample size also present some complications with the statistical models used in this case study. The event history model was found to be particularly affected by the small

sample size. While this model was executed, several problems arose which prevented reliable results; therefore, the event history model is excluded from this case study. In addition, only the regression models for the prestige scores and wages of immigrants' most recent jobs will be presented. The regression models that measure the changes in immigrants' prestige scores and wages between jobs are not presented in this chapter for two reasons. First, the sample size is very small as this sample is restricted to only those who have held at least two jobs, making generalizations questionable. Second, when these models were executed, none of the variables other than the prestige score and wage of immigrants' first jobs were found to be statistically significant predictors of the changes in immigrants' prestige scores and wages.

The discussion of this case study begins with a presentation of descriptive data representing the characteristics of the sample itself which includes immigrants aged 25 to 64 who have stated an engineering occupation as their intended occupation and have worked at least one job since arriving in Canada. In addition, some descriptive data about the percentage of immigrants who obtained a job match is provided, as well as the average number of days since immigrating that it took this group of immigrants to obtain a job match. Descriptive data is also presented indicating the average prestige score and average wage of immigrants' most recent jobs. Results from the logistic regression model are followed by a discussion of findings from the OLS regression models which examine the influence that ascribed, demographic, and human capital factors have on the prestige score and wage of immigrants' most recent jobs.

Describing the Sample: Key Variables of Interest

The engineer sample shares some similarities with the larger sample examined in previous analyses; however, it also differs in some respects. A description of several variables of interest in the engineer sample is presented in Table 10.1 below. The first difference of note is that the percentage of women in the engineer sample is far less (13.8%) than the percentage of women represented in the larger sample (26.3%). This is indicative of the general under-representation of women in engineering professions. The proportion of individuals who immigrate to Canada from Asia is also fairly different from the

larger sample. While over half (58.7%) of immigrants in the larger sample arrive in Canada from Asian nations, individuals from Asia make up a greater percentage of the engineer sample (69.2%). The representation of Europeans is similar between the two samples, representing about 20% of individuals in each. In addition, while the percentage of immigrants who arrive in Canada under the "Skilled Worker" admission category is very high in both samples, nearly all of the individuals (98%) in the engineer sample immigrate under this category.

Table 10.1: Descriptive Data for Categorical Variables of Interest (Engineer Sample)

VARIABLES OF INTEREST	ENGINEER SAMPLE	
	Frequency	***Percentage***
Sex		
Female	99	13.8
Male	619	86.2
Total (n)	**718**	**100.0**
Visible Minority Status		
No, not a visible minority	172	24.0
Yes, a visible minority	545	76.0
Total (n)	**717**	**100.0**
Immigrant Admission Category		
Skilled Worker	704	98.0
Other	14	2.0
Total (n)	**718**	**100.0**
Region of Birth		
Europe	148	20.6
Asia	496	69.2
Other Region	73	10.2
Total (n)	**717**	**100.0**
Level of Education		
Bachelor's Degree	465	64.8
Master's or Professional Degree	198	27.6
Doctoral Degree	36	5.0
Other Education	19	2.6
Total (n)	**718**	**100.0**
Work Experience in Intended Occupation		
Yes	421	59.4
No	188	40.6
Total (n)	**709**	**100.0**

Although the education variables are represented differently in the engineer sample and the larger sample, there is one level of education that can be compared. A higher percentage of immigrants with a Bachelor's degree are represented in the engineer sample (64.8%) than in the larger sample (50.4%). However, this is logical considering that individuals who work in engineering occupations are typically required to hold a Bachelor's degree. Therefore, most immigrants whose levels of education are lower than an undergraduate degree likely would not state an engineering occupation as their intended occupation. Almost one third of the engineer sample holds a Master's degree or higher (32.6%). In addition, about forty percent (40.6%) of immigrants in this sample have foreign work experience in their intended occupation. A larger percentage of immigrants who intend to work as engineers have previous work experience than those in the larger sample (about 34%). This may in part be due to the need for engineers to have several years of work experience prior to obtaining a professional designation.

The mean age of immigrants in the engineer sample (35) is the same mean age of those in the larger sample (Table 10.2). Therefore, immigrants who intend to work in engineering occupations are, on average, similar in age to the larger group of immigrants examined in the previous models. However, the standard deviations indicate that those who intend to work in engineering occupations are closer to one another in age than immigrants in the larger sample. In addition, the average number of jobs held in Canada by individuals in the engineer sample is the same as the mean value of number of jobs held by immigrants in the larger sample (1.8).

Table 10.2: Mean Age of Immigrants (Engineer Sample)

VARIABLE OF INTEREST	ENGINEER SAMPLE	
	Mean	***S.D.***
Age at Wave One (n=718)	35.51	6.05
Number of Jobs Held Since Immigrating (n=715)	1.8	1.02

Percentage of Job Matches and Average Length of Time until a Job Match

The following table (Table 10.3) indicates the percentage of immigrants who state an engineering occupation as their intended occupation and did or did not obtain a job match during their first two years in Canada. The data show that only about 10% of immigrants who intend to work as engineers obtain employment in their desired occupation (unit group level). This is only about half the percentage of immigrants who receive a unit group job match in the larger sample (19%). This may be linked to the SES findings from the "job match" models which indicate a negative relationship with job match. Because engineering occupations tend to have higher SES scores than other occupations, as well as special requirements for practicing in Canada, immigrants who seek employment in these occupations likely have more difficulty obtaining job matches, especially soon after migration to Canada.

Table 10.3: Percentage of Unit Group Job Matches (Engineer Sample)

	Frequency	**Percentage**
Job Match	72	10.0
No Job Match	646	90.0
Total	**718**	**100.0**

The average length of time that it takes immigrants in the engineer sample to obtain a job match in their intended occupation within the field of engineering is represented below (Table 10.4). On average, immigrants seeking engineering occupations take about 167 days to obtain a job match at the unit group level, with the median number of days being 87.4. These two values indicate that there is a fairly large positive skew in this sample as is the case in the larger sample. That is, there are some extreme high values that have "pulled up" the average number of days. In addition, the mode is "1", as it is in the larger sample, indicating that the most frequently occurring length of time until a job match represents those who obtain employment matching their intended occupations upon arrival in Canada. This suggests that many who obtain a job match in Canada already have arranged employment prior to their arrival. The average number of days that it takes for this group of immigrants to obtain

employment in an engineering occupation is lower than the average number of days for individuals with a unit group job match in the larger sample (180.6 days). Therefore, although a smaller proportion of immigrants obtain job matches in the field of engineering than in the larger sample, those who have job matches tend to obtain this employment more quickly than those who obtain job matches in the general population. This difference in means is found to be statistically significant at the 95% confidence level ($p<0.05$).

Table 10.4: Descriptive Data for the Length of Time until a Job Match (Engineer Sample)

	Number of Days until Job Match: Unit Group Level
Mean	166.7
Median	87.4
Mode	1
Standard Deviation	195.8
Valid Cases	**72**

Mean Prestige Score and Mean Wage for Engineer Sample

Data regarding the average prestige score and the average logged weekly wage of immigrants' most recently held jobs in the engineer sample are presented below (Table 10.5). These data show that theaverage prestige score for immigrants' most recent job is about 66 points. This score is similar to the average prestige scores of both the larger sample (immigrants who have held at least one job) and the restricted sample (immigrants who have held at least two jobs). However, this score is about 10 points lower than the occupational prestige score associated with the major group "Professional Occupations in Natural and Applied Sciences" (Major Group 21), within which engineering occupations are represented. The occupational prestige score associated with this major group is 76.6 points (Goyder and Frank, 2007). Therefore, on average, those immigrants who intend to gain employment in an engineering occupation in Canada actually obtain employment in occupations with

lower occupational prestige scores than those represented in the "Professional Occupations in Natural and Applied Sciences" major group of the NOC. The median prestige score of immigrants' most recent jobs in the engineer sample (65.7) is almost one point lower than the mean score of prestige (66.19). Thus, there are some high scores in this distribution which affect the mean slightly. In addition, the standard deviation is somewhat higher for the prestige scores in the engineer sample than in the larger sample, indicating that there is greater variability around the mean prestige score in the engineer sample. Overall, it can be concluded that immigrants in the engineer sample are, on average, working in jobs that have lower prestige scores than their intended occupations.

The mean logged wage for the engineer sample is the same for the larger sample (6.20) and slightly higher than the average wage in the restricted sample. This indicates that there is no difference in the average wage of immigrants' most recent jobs between the engineer sample and the sample representing the general immigrant population. Within the engineer sample, the median logged wage value of 6.25 indicates that there is a very slight negative skew in the distribution; there are some low values of wage in the engineer sample that pull down the mean value somewhat. In addition, the standard deviations in the engineer sample and the larger sample are similar. This signifies that the variability around the mean logged wage in these two samples is alike.

Table 10.5: Descriptive Data for Occupational Prestige and Logged Wage of Most Recent Job (Engineer Sample)

	Prestige Score	**Logged Wage**
Mean	66.19	6.20
Median	65.70	6.25
Standard Deviation	9.12	0.78
Total (Valid Cases)	**715**	**641**

Model 13: Logistic Regression for Unit Group Job Match (Engineer Sample)

The data in Table 10.6 represent the findings for the logistic regression model in which the dependent variable indicates whether or not a job match is obtained at the unit group level. The ascribed and demographic variables are entered in Model 13a and the human capital variables are added to the previously entered factors in Model 13b. Model 13b also includes a measure of the number of jobs an immigrant has held in Canada. The following discussion addresses the significant results from these models in turn.

Model 13a: Effects of Ascribed and Demographic Factors on Likelihood of a Unit Group Job Match

Only one of the ascribed and demographic variables is statistically significant in this model. Whether or not an immigrant lives in a major CMA has a negative relationship with the likelihood of a job match for this group of immigrants. The data show that immigrants who live in Montreal, Toronto, or Vancouver are less likely to obtain a unit group job match in the field of engineering than those who live in other areas in Canada ($OR=0.361$, $p<0.001$). This finding continues to counter my original hypothesis which anticipates that immigrants who live in a major CMA experience greater employment success than those who live elsewhere, possibly due to more employment opportunities.

Model 13b: Effects of Human Capital Factors on Likelihood of a Unit Group Job Match

When human capital factors are controlled, there is little change in the strength and significance of the influence that living in a major CMA has on the likelihood of a job match. Although the effect of living in a major CMA is lessened slightly when human capital variables are included in the model, immigrants living in Montreal, Toronto, or Vancouver continue to have lower odds of obtaining a job match in an engineering occupation than those who live elsewhere ($OR=0.390$, $p<0.01$).

Neither the education variables nor the "Number of Jobs Held Since Immigrating" variable are statistically significant predictors of the likelihood of a job match for this sample as they are for the larger sample. However, the remaining human capital factors are influential. English language proficiency is a highly significant predictor of the likelihood of a job match for this group of immigrants; as an immigrant's English language proficiency increases, the likelihood that he or she

TABLE 10.6: MODEL 13 - LOGISTIC REGRESSION ON OVERALL JOB MATCH (UNIT GROUP) for ENGINEER SAMPLE

	Model 13a			Model 13b		
	β	**SE**	**OR**	**β**	**SE**	**OR**
Intercept	-0.308	1.087	0.73	-2.238	1.426	0.09
Sex	0.171	0.478	1.19	-0.004	0.519	1.00
Age at Immigration	-0.011	0.021	0.99	-0.025	0.022	0.97
Visible Minority Status	1.693	3.941	5.44	1.362	3.953	3.90
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-1.018***	0.279	0.36	-0.962**	0.325	0.38
Region of Origin (Europe=Reference Category)						
Asia	-2.215	3.943	0.11	-1.642	3.953	0.19
Other Region	-2.489	3.935	0.08	-2.607	3.961	0.07
Admission Class						
Skilled Worker	-0.560	0.728	0.57	-0.789	0.859	0.45
Level of Education (Bachelor's Degree= Reference Category)						
Master's or Professional Degree	—	—	—	0.375	0.312	1.45
Doctorate Degree	—	—	—	0.502	0.657	1.65
Other Education	—	—	—	-0.766	0.769	0.46
Language Proficiency						
English	—	—	—	0.029***	0.008	1.03
French	—	—	—	0.022**	0.008	1.02
Previous Experience	—	—	—	1.306***	0.291	3.69
Number of Jobs Held	—	—	—	-0.244	0.159	0.78

Notes:
Dependent Variable: Overall Job Match for Unit Group: 1= Obtained a Job Matching Intended Occupation, 0= Did Not Obtain a Job Matching Intended Occupation
Sample represents respondents between ages 25-64 who stated an engineering occupation as their intended occupation and have held at least one job since immigrating
β = Logistic Regression Coefficient; SE = Standard Error; OR = Odds Ratio
Sample Size: N=718; Model 1a: n=712 ; Model 1b: n=704
All coefficients and standard errors were estimated based on bootstrap weight = 997
Statistical significance: * $p<0.05$; ** $p<0.01$; *** $p<0.001$
Pseudo R^2: Model 13a = 0.05; Model 13b = 0.16

will obtain a job match also increases (OR=1.03, p<0.001). This relationship is also true of an immigrant's French language proficiency (OR=1.02, p<0.01). These results are also found in the larger sample and lend further support to the hypothesis that the higher an immigrant's proficiency in an official language, the greater employment success he or she experiences in Canada.

The data also indicate that whether or not an immigrant has previous work experience in his or her intended occupation prior to immigrating is a highly significant predictor of the likelihood of obtaining a job match. Of immigrants who intend to work in engineering occupations, those with previous foreign experience have almost four times greater odds of a job match than those without previous experience (OR=3.69, p<0.001). This is also seen in the larger sample and continues to support the hypothesis that immigrants with previous work experience in their intended occupations experience greater employment success in Canada than those without this type of experience. In addition, this finding suggests that foreign work experience is some way aids immigrants in obtaining employment success in Canada.

Model 14: Regression for Occupational Prestige of Most Recent Job (Engineer Sample)

Table 10.7 presents the detailed results for Model 14. This model is an OLS regression in which the dependent variable is the occupational prestige score of an immigrant's most recently held job in Canada. As in Model 13, only ascribed, demographic (Model 14a), and human capital factors (Model 14b) are examined. The findings will be reported with reference to statistically significant variables and the size of their relationships with the prestige score of immigrants in the engineer sample.

Model 14a: Effects of Ascribed and Demographic Factors on the Occupational Prestige Score of Most Recent Job

Of the ascribed and demographic factors, only the age variable is a statistically significant predictor of the prestige score of an immigrant's most recent job in the engineer sample. Age has a negative relationship with the prestige score of an immigrant's job, indicating that for every increase of one year in an immigrant's age, the prestige score of his or her most recent job is predicted to decrease by about

TABLE 10.7: MODEL 14 - REGRESSION ON PRESTIGE SCORE OF MOST RECENT JOB for ENGINEER SAMPLE

	Model 14a			Model 14b		
	b	**β**	**SE**	***b***	**β**	**SE**
Intercept	76.442***	—	3.507	71.623***	—	3.813
Sex	0.907	0.036	1.126	0.402	0.015	1.099
Age at Immigration	-0.181**	-0.120	0.058	-0.189***	-0.126	0.057
Visible Minority Status	-0.157	-0.006	1.500	-0.212	-0.010	1.424
C.M.A. (Lives in Montreal, Toronto,or Vancouver)	-1.460	-0.071	0.806	-0.638	-0.031	0.810
Region of Origin (Europe=Reference Category)						
Asia	-2.339	-0.117	1.589	-1.435	-0.073	1.555
Other Region	0.027	0.001	1.607	-0.566	-0.019	1.538
Admission Class						
Skilled Worker	-1.825	-0.028	2.558	-2.062	-0.031	2.605
Level of Education (Bachelor's Degree= Reference Category)						
Master's or Professional Degree	—	—	—	1.923*	0.095	0.834
Doctorate Degree	—	—	—	5.581***	0.131	1.444
Other Education	—	—	—	-1.601	-0.029	2.335
Language Proficiency						
English	—	—	—	0.073***	0.157	0.018
French	—	—	—	0.049**	0.109	0.017
Previous Experience	—	—	—	0.041	0.002	0.718
Number of Jobs Held	—	—	—	-0.887*	-0.099	0.350

Notes:
Dependent Variable: Prestige Score of Most Recent Job
Sample represents respondents between ages 25-64 who stated an engineering occupation as their intended occupation and have held at least one job since immigrating
b=Unstandardized Regression Coefficient; β=Standardized Regression Coefficient; SE=Standard Error
Sample Size: N=718; Model 1a: n=712 ; Model 1b: n=704
All coefficients and standard errors were estimated based on bootstrap weight = 1,001
Statistical significance: * $p<0.05$; ** $p<0.01$; *** $p<0.001$
R^2: Model 14a=0.04; Model 14b=0.16

0.18 points (b=-0.181, p<0.01). This finding echoes what is found in the prestige model for the larger sample and supports the hypothesis that younger immigrants experience greater employment success than older immigrants.

Model 14b: Effects of Human Capital Factors on the Occupational Prestige Score of Most Recent Job

The addition of human capital variables only changes the coefficient for age slightly. While there is still a highly significant and negative relationship between these two variables, the impact of a one year increase in age is slightly greater when human capital variables are accounted for (b=-0.189, p<0.001). This finding continues to support this research hypothesis regarding the effect of age and also provides some support to the theory that age discrimination occurs within the Canadian labour market, at least with respect to the immigrant population.

Several human capital variables are statistically significant predictors of the prestige score of immigrants' most recently held job. Of the levels of education variables, the data show that having either a Master's or professional degree or a Doctorate degree has a positive influence on the occupational prestige of an immigrant's most recent job. The findings indicate that immigrants who seek an engineering occupation and who hold a Master's or professional degree are predicted to have a prestige score almost 2 points higher than those with a Bachelor's degree only (b=1.923, p<0.05). Immigrants with a Doctorate degree have an even greater advantage; these individuals are predicted to have a prestige score that is almost 6 points higher than those with a Bachelor's degree (b=5.581, p<0.001). These findings support the assumptions of human capital theory which assume that the higher one's level of education, the greater rewards he or she will receive in the labour market. "Over-education" may then be a solution to the employment problems of this group of immigrants.

Both the English and French language proficiency variables also have statistically significant and positive relationships with an immigrant's occupational prestige score in the engineer sample. The data indicate that for every increase of one point in an immigrant's English language proficiency score, his or her prestige score is predicted to increase by about 0.07 points (b=0.073, p<0.001). A similar

relationship is found for the French language variable (b=0.049, p<0.01). These results are also found in the larger sample and continue to support this research hypothesis which expects a positive relationship between proficiency in an official language and immigrant employment success.

The data also indicate that the number of jobs an immigrant in the engineer sample has held since arriving in Canada has a statistically significant effect on his or her occupational prestige. As in the larger sample, the more jobs an immigrant has held, the lower his or her prestige score is predicted to be. Among immigrants in the engineer sample, for each additional job that one holds, his or her prestige score is predicted to decrease by almost one point (b=-0.887, p<0.05). These findings suggest that holding many jobs after arriving in Canada is detrimental to immigrants' occupational prestige scores.

In general, of the variables that are statistically significant predictors of the prestige score of an immigrant's most recent job in Model 14b, English language proficiency has the greatest influence (β=0.157) followed closely by the possession of a Doctorate degree (β=0.131). An immigrant's age (β=-0.126) and French language proficiency (β=0.109) are also moderately influential in this model. Of the significant variables, the number of jobs held since immigrating (β=0.099) and possessing a Master's or professional degree have the smallest influence on an immigrant's prestige score in the engineer sample (β=0.093).

Model 15: Regression for Logged Wage of Most Recent Job (Engineer Sample)

The following sections discuss whether ascribed and demographic variables (Model 15a) or human capital factors (Model 15b) are statistically significant predictors of the wage of an immigrant's most recent job within the engineer sample. The regression coefficients, significance levels, and standard errors for this model are represented in Table 10.8.

Model 15a: Effects of Ascribed and Demographic Factors on Logged Wage of Most Recent Job

The results for the regression of ascribed and demographic characteristics on the logged wage of immigrants' most recent jobs in the engineer sample are discussed in this section. Only two of these variables have a statistically significant relationship with immigrants' wages. As in the larger sample,

TABLE 10.8: MODEL 15 - REGRESSION ON LOGGED WAGE OF MOST RECENT JOB for ENGINEER SAMPLE

	Model 15a			Model 15b		
	b	**β**	**SE**	***b***	**β**	**SE**
Intercept	6.379***	—	0.285	5.742***	—	0.291
Sex	0.528***	0.242	0.106	0.433***	0.196	0.104
Age at Immigration	-0.006	-0.047	0.005	-0.006	-0.047	0.005
Visible Minority Status	0.009	0.007	0.230	-0.032	-0.018	0.208
C.M.A. (Lives in Montreal, Toronto, or Vancouver)	-0.212**	-0.120	0.070	-0.130*	-0.073	0.066
Region of Origin (Europe=Reference Category)						
Asia	-0.269	-0.157	0.232	-0.196	-0.115	0.218
Other Region	-0.084	-0.035	0.243	-0.156	-0.060	0.218
Admission Class						
Skilled Worker	-0.079	-0.013	0.148	-0.033	-0.005	0.137
Level of Education (Bachelor's Degree= Reference Category)						
Master's or Professional Degree	—	—	—	0.037	0.021	0.077
Doctorate Degree	—	—	—	0.287*	0.076	0.123
Other Education	—	—	—	0.002	0.001	0.150
Language Proficiency						
English	—	—	—	0.010***	0.246	0.002
French	—	—	—	0.004*	0.094	0.001
Previous Experience	—	—	—	-0.008	-0.005	0.065
Number of Jobs Held	—	—	—	-0.085**	-0.111	0.029

Notes:
Dependent Variable: Logged Weekly Wage of Most Recent Job
Sample represents respondents between ages 25-64 who stated an engineering occupation as their intended occupation and have held at least one job since immigrating
b=Unstandardized Regression Coefficient; β=Standardized Regression Coefficient; SE=Standard Error
Sample Size: N=718; Model 1a: n=638 ; Model 1b: n=631
All coefficients and standard errors were estimated based on bootstrap weight = 1,001
Statistical significance: * $p<0.05$; ** $p<0.01$; *** $p<0.001$
R^2: Model 15a=0.09; Model 15b=0.16

sex is a highly significant predictor of an immigrant's wage among those who intend to work as engineers. Male immigrants are predicted to have higher wages than female immigrants (b=0.523, $p<0.001$). This finding supports this research hypothesis which is based on the assumptions of gender discrimination: male immigrants experience significantly greater employment success in Canada in terms of wages than female immigrants.

In addition, whether or not an immigrant lives in a major CMA is a statistically significant predictor of wage in this model. Immigrants in the engineer sample who live in a major CMA are predicted to have a lower wage in their most recent job than those who live elsewhere in Canada (b= -0.212, $p<0.01$). This is also found in the larger sample. Again, these results counter my original hypothesis that immigrants who live in Montreal, Toronto, or Vancouver experience greater employment success than immigrants who live in other areas of Canada.

Model 15b: Effects of Human Capital Factors on the Logged Wage of Most Recent Job

When human capital variables are accounted for, an immigrant's sex and whether or not he or she lives in a major CMA continue to be statistically significant predictors of an immigrant's wage, although the size of the coefficients for these variables are slightly smaller in Model 15b (b=0.433, $p<0.001$ and b=-0.130, $p<0.05$ respectively). Therefore, even when human capital factors are controlled, male immigrants are predicted to have higher wages than female immigrants, lending further support to this research hypothesis. In addition, immigrants who intend to work as engineers and live in Montreal, Toronto, or Vancouver are still predicted to have lower wages than those who live elsewhere in Canada, even when variations in human capital are controlled.

With respect to the human capital variables themselves, one of the levels of education is a statistically significant predictor of wage. The data indicate that immigrants who intend to work as engineers in Canada and who hold a Doctorate degree are predicted to obtain a higher wage in their most recent job than those who hold a Bachelor's degree only (b=0.287, $p<0.05$). This finding supports the hypothesis, as well as human capital theory, which anticipates that those with higher levels of education obtain greater rewards within the labour market (in this case financial rewards).

Of the human capital factors, the language proficiency variables also have statistically significant relationships with the logged wage of immigrants' most recent jobs in the engineer sample. As in the larger sample, both English and French language proficiency have positive relationships with the wage of an immigrant's most recent job. That is, for every increase of one in an immigrant's English or French language proficiency score, his or her wage is also predicted to increase (b=0.010, $p<0.001$ and b=0.004, $p<0.05$ respectively). Both of these findings support this research hypothesis that the higher an immigrant's proficiency in one or both of Canada's official languages, the greater his or her employment success.

The number of jobs an immigrant has held since arriving in Canada is also a significant predictor of wage, just as it is in the larger sample. The data indicate that the wage for an immigrant's most recent job is predicted to decrease with every additional job he or she holds in Canada (b=-0.085, $p<0.01$). Again, this is a particularly notable finding as it counters the assumption of human capital theory that as an individual progresses in the labour market (i.e. as they gain more work experience), he or she receives greater rewards. Therefore, in this respect, the immigrant population has a very different experience within the labour market than that which human capital theorists presume to take place for the general population. Thus, human capital theory does not fully explain the labour market outcomes of the immigrant population in Canada among the engineer sample or the larger sample. However, it must be noted that the Canadian work experience examined in this study is only obtained over a two year period.

In Model 15b, several variables are statistically significant predictors of the wage of an immigrant's most recently held job. Of these variables, English language proficiency has the greatest influence on an immigrant's wage (β=0.246) while sex also has a relatively strong impact (β=0.196). French language proficiency (β=0.094) and possessing a Doctorate degree (β=0.076) also have moderate relationships with the wage of an immigrant's most recent job relative to the other significant variables. Whether or not an individual lives in a major CMA has the smallest influence on the wages of immigrants in the engineer sample (β=-0.073).

Summary

The descriptive data presented in this chapter indicate that there are only a few key differences between the engineer sample and the larger sample. Of note, women are much less represented in the engineer sample than they are in the larger sample. The proportion of individuals from Asian nations is also larger in the engineer sample than in the larger sample. With respect to employment success, the percentage of immigrants who obtained a job match in the engineer sample is smaller than in the larger sample. In addition, the mean prestige scores of immigrants' most recent jobs in the engineer sample and the larger sample are similar. However, on average, immigrants within the engineer sample are largely unable to obtain employment similar to the occupational prestige standing associated with their intended occupations. The descriptive data also indicate that immigrants in the engineer sample have the same mean wage as those in the larger sample, suggesting that they are obtaining similar employment in terms of financial rewards.

Model 13 reveals that, within the sample of immigrants who intend to work in engineering occupations, human capital factors have a greater influence on the likelihood of obtaining employment in their intended occupations than most ascribed and demographic factors. Language proficiency in English or French and previous work experience, as well as living in a major CMA are significant predictors in this model. Model 14 indicates that very few ascribed and demographic factors are statistically significant predictors of the occupational prestige of an immigrant's most recent job in the engineer sample. Of note, the data show that immigrants who hold Master's or professional degrees are predicted to have higher prestige scores than those with Bachelor's degrees; holding a Doctorate degree results in an even greater positive effect on prestige scores for this group of engineers compared to Bachelor's degree holders. English and French language proficiency scores also have a positive relationship with immigrants' occupational prestige scores in the engineer sample as they do in the larger sample. The results from Model 15 indicate that immigrant men are predicted to obtain higher wages than immigrant women. In addition, immigrants who do not live in a major CMA continue to be found to obtain higher wages than those who live in Montreal, Toronto, or Vancouver. Immigrants

in the engineer sample who hold a Doctorate degree are also predicted to have higher wages than those with a Bachelor's degree, supporting human capital theory. Lastly, the more jobs an immigrant has held in Canada, the lower the wage in his or her most recent job. This is also found in the larger sample and is of particular note because it counters the general assumptions of human capital theory. These findings are discussed further in Chapter Eleven.

Chapter Eleven

Discussion of Findings

Chapter Eleven discusses the major findings from the results chapters with specific reference to the theoretical perspectives addressed in Chapter Two. The first section discusses some findings of interest from the descriptive data; however, the majority of this chapter provides elaboration on findings from the statistical models. The main focus of the chapter is on the influence that the main predictor variables have on immigrant employment success. While the analyses conducted differ with respect to the dependent variables used to measure the concept of employment success, as well as with respect to the levels of occupational classifications used to determine job matches, the discussion of findings focuses on general conclusions that can be deduced from these various models. Findings from the engineer case study are also addressed.

The discussion of findings in this chapter speaks to the specific research questions regarding each model. In general, these questions ask whether ascribed and demographic characteristics, human capital factors, and/or the occupational characteristics of immigrants' intended occupations affect different aspects of immigrants' employment success in Canada (refer to the Chapter Four for specific research questions). In addition, findings regarding exploratory variables (the CMA and number of jobs held variables) are addressed. The discussion of findings examines how these factors influence the employment success of immigrants in terms of (a) the likelihood of obtaining a job match within their first two years in Canada, (b) the rate at which a job match is obtained, (c) their incomes (measured by weekly wages) in Canada, and (d) their occupational prestige scores in Canada. Answers to the research questions are related to the overarching theoretical perspectives which shape the research hypotheses for this study (refer to Chapters Two and Four for further detail). Finally, conclusions about the implications and potential use of these findings are made in this chapter. A summary of the major findings as they relate to the specific research questions asked can be found in Chapter Twelve.

Major Findings from the Descriptive Data

In general, the descriptive findings indicate that immigrants in this sample are primarily highly educated males who arrive in Canada under the "Skilled Worker" category. The most common intended occupation among immigrants in the sample is the unit group of "Computer Programmer or Interactive Media Developer". At the more general level of occupational classification, the majority of immigrants in the sample intend to work in professional or technical occupations in the natural and applied sciences. The data indicate that immigrants who are between the ages of 25 to 64, who state an intended occupation, and who have held at least one job in Canada have a relatively high level of training and education. Generally, the proportion of immigrants with a post-secondary degree is higher than the Canadian-born population (Reitz, 2003).

The descriptive findings indicate that very few immigrants obtain a job match at the unit group level of the NOC within their first two years in Canada. However, as the level of occupational classification broadens a greater percentage of immigrants obtain job matches. Almost half of the immigrants in this sample obtained a job match at the broadest levels of classification. While this indicates that many immigrants obtain employment in their general field of interest or employment that matches their education or training, the methodological implications of these findings are noteworthy. Most research on immigrant employment implies that immigrants' primary challenge is obtaining employment in their intended occupations; however, studies generally measure this at a very broad level (e.g. skill level). Therefore, one must consider what is truly being measured in such studies. While immigrants may be obtaining jobs that match their education levels, the skill level classification only distinguishes skill levels based on four broad categories. In fact, the highest skill level in the NOC represents occupations that require a university degree. This includes a very broad range of occupations and does not differentiate occupations that require credentials higher than a Bachelor's degree. Similarly, immigrants who obtain a skill type match may be working in their general field of interest, but are not necessarily carrying out the same job duties of the occupation in which they intend to work upon arriving in Canada. For example, an immigrant who intends to work as a family

physician and obtains employment as a hospital orderly is considered to have a skill type match as both of these occupations are classified under the skill type "Health Occupations". Therefore, although the individual is working in his or her general field of interest, a skill type match may not be truly representative of his or her desired employment or the level of his or her abilities and training in that area.

Thus, this research illustrates that one can determine a very specific or very vague level of "job match" among immigrants depending on how broadly or narrowly their occupations are classified. While the unit group classification of occupations provides information on a very specific level of job match, analysis of a skill level match provides information on what factors influence whether immigrants obtain jobs that suit their education and/or training. While all of the models in this study do not necessary represent whether or not an immigrant has obtained employment in his or her specific intended occupation, they all provide different, yet inter-related, insight into different dimensions of immigrants' employment success in Canada.

With respect to the length of time that it takes for immigrants to obtain employment in their intended occupations, little difference is found between the varying levels of occupational classification within the descriptive data. Most immigrants who obtained a unit group, major group, skill type, or skill level match did so within their first six months in Canada. These data also echo the finding that the hazard rate of obtaining a job match declines over time. This indicates that, within their first two years in Canada, the immigrants are less successful in obtaining employment in their intended occupations the longer that they are in Canada.

Major Findings from the Statistical Models

The following section addresses the major findings relating to the predictor variables entered in the statistical models. While some variables are found to be statistically significant across several models, others differ according to the dependent variable or the level of occupational classification examined. As such, only the key findings that are relatively consistent across models will be discussed in detail.

The focus of this section is to advance the empirical results into conclusions pertaining to the hypotheses and theoretical perspectives employed in this study.

Discussion of Key Findings: Ascribed and Demographic Variables

The first set of variables entered into all models represents ascribed and demographic characteristics. While some of the results vary across models, there are some consistent findings. The immigrant admission class variables are, on the whole, not found to be significant predictors in the full models[13]. However, both an immigrant's age and visible minority status are significant predictors of his or her employment success across several models. While the results regarding an immigrant's sex and region of origin are not as consistent in terms of their statistical significance across all models, results from these variables are also worthy of some discussion. Findings relating to the CMA variable are of particular interest and will be a significant focus of the following discussion.

The logistic regression models indicate that younger immigrants are more likely to obtain a unit group job match than older immigrants. This relationship is also found in the event history models; the older an immigrant is, the longer it takes for him or her to obtain a job match. These findings support my original research hypothesis that younger immigrants experience greater success than older immigrants in Canada's labour market. These results also support the discrimination thesis as they indicate that older immigrants experience greater difficulty obtaining employment that matches their intended occupations than younger immigrants. This suggests that older immigrants may encounter age discrimination when attempting to obtain job matches within the Canadian labour market.

Data from the prestige models (9b and 11c) further indicate that older immigrants encounter age discrimination. These results reveal that the older an immigrant is upon arrival in Canada, the lower occupational prestige score he or she will have. This holds true in the change model, indicating that younger immigrants experience more upward mobility between jobs than older immigrants. These findings support the hypothesis that younger immigrants obtain occupations with higher prestige scores

[13] The term "full model" refers to the last column of each statistical table which represents the results when all predictor variables are entered into the model.

than older immigrants and provide support for the more general hypothesis that older immigrants experience less employment success in Canada than younger immigrants.

Results from the first wage model (Model 10b) also show a negative relationship between an immigrant's age and his or her wage; older immigrants obtain lower wages in their most recently held jobs than younger immigrants. This finding is particularly interesting as individuals' incomes are assumed to increase with age. This assumption is largely based on the principles of human capital theory: the older an individual is within the traditional age range of the work force (i.e. up to age 64), the greater education, experience, or other qualifications he or she accumulates which ultimately contribute to greater rewards in the labour market. This finding counters general assumptions regarding the relationship between age and income based on the tenets of human capital theory and continues to support the hypothesis that older immigrants experience less employment success, possibly as a result of age discrimination, within the Canadian labour force. However, older immigrants experience a change in wages between jobs that is not significantly different from younger immigrants.

With respect to the engineer case study, older immigrants are only at a significant disadvantage compared to younger immigrants when predicting the occupational prestige scores of their most recently held jobs. In this model (Model 14b), the data indicate that the older an immigrant who intends to work as an engineer, the lower occupational prestige he or she can expect in his or her most recent job. This finding is similar to that from the prestige model for the larger sample, further supporting the hypothesis that older immigrants experience less employment success in Canada than younger immigrants. Therefore, the data indicate that age discrimination may be evident when measuring the occupational prestige scores for this sub-group of immigrants who seek employment in engineering occupations. However, unlike findings from the larger sample, the wages of immigrants in the engineer sample do not differ significantly between older and younger immigrants.

While age discrimination is likely experienced by older immigrants, their disadvantage in the labour market may be due to other reasons, at least in part. First, older immigrants may have more difficulty adapting to a new culture than younger immigrants (Anisef et al., 2003). In particular,

younger immigrants may be able to forge stronger social networks that could help them in their employment search and they may also have greater knowledge of a variety of employment resources available to them in their new country. Language proficiency could also play a part for those immigrants whose first language is not English or French. In addition, younger immigrants may experience greater employment success due to a decline in individuals' ability to earn a second language with age (Bialystok and Hakuta, 1994).

Whether or not an immigrant is a member of a visible minority group is also a significant predictor of the likelihood and hazard rate of obtaining a job match at most levels of occupational classification. Data from these models reveal that visible minority immigrants experience lower odds and a slower rate of obtaining a job match than non-visible minority immigrants. These findings support the hypothesis that immigrants who are identified as racial minorities in Canadian society experience less employment success than those who are not identified as racial minorities. This also supports the discrimination thesis, indicating that visible minority immigrants may encounter racial discrimination within the Canadian labour market as this finding is upheld when other factors are controlled.

Visible minority status is also a significant predictor of an immigrant's wage in Model 10b, but it is not a significant predictor of his or her occupational prestige score or the change in an immigrant's wages between jobs. Results indicate that visible minority immigrants obtain lower wages in their most recently held jobs than non-visible minority immigrants but do not significantly differ from non-visible minorities in their upward mobility between jobs. While visible minorities may not be at a disadvantage with respect to their occupational prestige when compared to non-visible minorities, they do suffer from lower wages in their most recent jobs. Therefore, while visible minority immigrants may not obtain jobs that are significantly different from non-visible minority immigrants in terms of their prestige scores, they are obtaining wages that are significantly lower than non-visible minority immigrants. Considering that the prestige scores between these two groups are not significantly different, this indicates that racial discrimination may be occurring within their places of employment

in terms of the wages paid to visible minorities compared to non-visible minorities. These results are particularly revealing if one considers that a prestige score is an externally assigned score associated with an individual's occupation while an individual's wage is largely determined internally by his or her employer. Thus, while visible minority immigrants' employment may not appear to differ externally (i.e. the prestige associated with their occupation), their employment may be quite different from non-visible minority immigrants' employment internally, in terms of their financial rewards. Thus, although visible minority immigrants may be "on-par" with non-visible minorities in terms of the social standing of their employment, they are found to be at a disadvantage with respect to their financial standing. One important implication of this discrepancy in earnings is that it can translate into inequality within the immigrant population with visible minority immigrants having a lower standard of living than non-visible minority immigrants.

Lastly, it should be noted that the visible minority status variable is not found to be a significant predictor of wage within the engineer sample (Model 15b) both before and after human capital variables are included. The fact that visible minority status is not significant among this sample indicates that visible minority immigrants who seek employment as engineers receive essentially the same wages as non-visible minority immigrants. Therefore, one can deduce that immigrants in the engineer sample differ from the larger sample of immigrants with respect to their experience of racial discrimination, at least as it relates to a difference in earnings. While this result indicates that occupations within the field of engineering may have more standardized salaries that are less subject to internal discrimination based on one's minority status, one must also consider that very few immigrants in this sample obtain employment in their intended occupations. These differences could be due to the higher proportion of immigrants in the engineer sample who hold Master's and higher level degrees. However, this difference in the engineer findings requires further examination in future research.

Of the ascribed characteristics, sex is also a significant predictor of the hazard rate of a major group (Model 6d) and skill type (Model 7d) job match; however, this variable is not statistically

significant in any of the full models examining the likelihood of a job match. This counters many previous findings, as well as this research hypothesis, regarding the effect of sex on immigrant employment success. However, these results could be due to the specific sample used for this analysis. Due to the fact that only individuals who state an intended occupation upon immigration are included in this sample, many women who immigrate as dependents (as opposed to principal applicants) are likely excluded from the analysis. Research that identifies sex as an influential factor to the employment success of immigrants tends to focus on women who arrive in Canada as dependents and concludes that their status as dependents hinders their employment success (e.g. Man, 2004). Because of their "dependent" status, these women often have access to fewer employment resources, such as language training, which may affect their employment success in the Canadian labour market.

Despite these limitations in the sample, results from the event history analyses in Models 6d (major group) and 7d (skill type) do reveal that immigrant men obtain job matches at a faster rate than immigrant women. These findings offer some support to this research hypothesis that male immigrants experience greater employment success in Canada than female immigrants. The results from these two models suggest that immigrant women may encounter gender discrimination in Canada. The more general assumptions of the discrimination thesis are also supported by these data which indicate that immigrant women face a greater disadvantage when attempting to obtain employment in their intended occupations than immigrant men, at least at the broader levels of occupational match.

Contrary to this research hypothesis regarding the effect of sex, results from the prestige model (Model 9b) indicate that female immigrants are predicted to have a higher prestige score in their most recent jobs than male immigrants. As discussed in the results chapter for these models, this finding may in part be due to the prestige scale itself which grants health occupations, which are generally female-dominated, a much higher prestige score than other occupational groups. While this is a potential explanation for this unanticipated finding, these results do counter the discrimination thesis, indicating that female immigrants experience a higher degree of employment success than male immigrants with respect to their occupational prestige scores. However, sex is not a significant

predictor of the change in immigrants' occupational prestige scores between jobs. Therefore, immigrant men and women experience similar mobility between their first and most recent jobs in Canada.

Data from the wage regression models show that male immigrants obtain significantly higher wages than female immigrants in their most recent jobs. This relationship remains significant in the change model when the wage of an immigrant's first job is controlled. Thus, sex is a highly significant predictor of an immigrant's wage and indicates that female immigrants experience income inequality, even when human capital factors are controlled. This is an indication immigrant women may experience gender discrimination within the Canadian labour market. An immigrant's sex is also a statistically significant variable in the wage model for the engineer sample. As with the findings from the visible minority status variables, these results indicate that, while immigrant women may be obtaining employment in occupations with higher prestige scores, they still suffer from significantly lower wages than immigrant men. The data in Model 15b also reveal that immigrant men who intend to work as engineers obtain higher wages in their most recent jobs than immigrant women in the same sample. Therefore, with respect to immigrants' wages, the results indicate that gender discrimination may be an issue for female immigrants who intend to work as engineers, just as it is for women within the larger immigrant population.

Although many of the ascribed variables offer consistent findings across several models, results from the regions of origin variables are comparatively varied. The data in some of the logistic regression models (Models 1d, 3d, 4d) indicate that immigrants who arrive from certain regions of the world are less likely to obtain job matches than immigrants who arrive from North American nations. Immigrants who arrive from the Caribbean or Guyana are less likely to obtain a unit group, skill type, and skill level match when compared to immigrants who arrive from North American nations. In addition, individuals from African nations are less likely to obtain skill type and skill level matches than immigrants arriving from areas of North America, while those from Asian nations are found to have lower odds of a skill level match when compared to immigrants from North America. These

findings generally support this research hypothesis that immigrants who arrive from non-traditional source regions experience less employment success than those from traditional source regions such as North America. These results also indicate that individuals from these regions of the world may experience discrimination based on their regions of origin.

Several of the regions of origin variables are also significant predictors of the hazard rate of a major group, skill type, or skill level match (Models 5d, 6d, and 7d). Individuals from Africa, Asia, the Caribbean or Guyana, Europe, and the Middle East obtain job matches at a slower rate in these models than individuals who arrive from areas of North America. These results further support this research hypothesis regarding the regions of origin variables: those from non-traditional source regions experience less employment success than those from more traditional source regions. The "Europe" results are somewhat contrary to this assumption as this region is often considered a traditional source region. Despite the fact that both North America and Europe are more traditional source regions, the data suggest that there is a difference between these two groups of immigrants that has an influence on their employment success. There are some potential explanations for this finding. First, many recent immigrants arriving from Europe tend to be from different areas (e.g. Eastern Europe) than European immigrants of the past (Western or Northern Europe); thus, many of the individuals who are included in the "Europe" category are likely from European nations that are not traditional source regions. In addition, the change in European source countries may result in cultural or linguistic differences between Canadians and immigrants from this region being more pronounced. Second, North American immigrants may be more similar to native-born Canadians than recent European immigrants in their educational and training programs and in their job-hunting procedures, thus allowing them to obtain greater employment success in Canada.

Individuals who arrive in Canada from Asia, the Caribbean or Guyana, or Europe also have lower prestige scores than individuals from North America (Model 9b). However, when the prestige of an immigrant's first job is controlled in the change model (Model 11c), the "Europe" variable is no longer a significant predictor of an immigrant's prestige score while the "Asia" and "Caribbean or

Guyana" variables remain significant. Therefore, while immigrants from Asia or the Caribbean or Guyana experience significantly lower prestige scores in their most recent jobs, as well as a significant difference in their upward mobility, when compared to immigrants from North America, immigrants from Europe experience a similar degree of upward mobility as those from North America. These findings generally support this research hypothesis, as well as previous literature (e.g. Thompson, 2000), that individuals who immigrate to Canada from non-traditional source regions experience less employment success than those from more traditional source regions.

While results from the regions of origin variables support this research hypotheses, results from the CMA variable do not. As previously mentioned, the CMA findings are particularly noteworthy due in part to the fact that they consistently counter this research hypothesis. These findings are also important in their implications for immigrants in Canada, particularly with respect to traditional assumptions about the benefits of living in a major CMA for this particular population. Results from the logistic regression models and event history models consistently indicate that living in a major CMA hinders immigrants' employment success in Canada. Individuals who immigrate to Montreal, Toronto, or Vancouver are less likely to obtain a job match and obtain these matches at a slower rate than immigrants who live elsewhere in Canada. Whether or not an immigrant lives in a major CMA is also a significant predictor of the likelihood of obtaining a unit group job match for the engineer sub-sample.

The CMA variable is also a significant predictor of an immigrant's prestige score and wage in his or her most recent job (Models 9b and 10b). In both the prestige and wage models the CMA variable is only statistically significant in the non-change models. The data indicate that immigrants who live in a major CMA obtain employment with lower prestige scores and lower wages in their most recent jobs than those who live elsewhere. This again suggests that immigrants who live in Montreal, Toronto, or Vancouver experience lower employment success than immigrants who live in other areas of Canada. The data from the engineer sample show the same relationship between living in a major CMA and an immigrant's wage, indicating that the engineer sample is not unique with respect to this

finding. These results also indicate that immigrants who live in major CMAs may be at a particular disadvantage financially compared to immigrants living elsewhere. Because the major CMAs are generally more expensive cities in which to live, immigrants living in Montreal, Toronto, and Vancouver may experience additional difficulties due to more costly living expenses than immigrants living in other areas of Canada experience. Thus, these results point to an inequality in the standard of living between immigrants within major CMAs and those who live elsewhere.

The finding that immigrants within major CMAs obtain lower wages than those who live elsewhere in Canada is similar to that of Bernard (2008) and Reitz (2004). Reitz (2004) argues that while immigrants move to Canada's major CMAs due to the large amount of employment opportunities, they may be at a disadvantage due to the strong competition for jobs from new Canadian-born labour market entrants in these areas. In addition, Bernard (2008) finds that, with respect to changes in the income gap between immigrants and native-born Canadians in different areas of Canada, immigrants integrate into less urbanized areas more quickly. He suggests that this may be due to the nature of smaller Canadian communities in fostering the establishment of social networks. In addition, Bernard (2008) suggests that immigrants who live in less urbanized areas experience greater pressure to become more proficient in English or French. This is due to the fact that it is more difficult to function in smaller communities when one does not speak an official language, as there are typically fewer linguistic communities represented.

While these hypotheses are plausible, other employment-related explanations must also be considered. One such explanation may be that employers' responsiveness to immigrants differs between these areas. While it may be assumed that immigrants would be more readily accepted by employers in major CMAs due to a greater exposure to immigrants and the cultural diversity represented within these cities, this could be an inaccurate assumption. Smaller communities often voice concern over their economic survival and, because immigrants are typically identified as a source of new and educated workers by the Canadian government, immigrants may in fact be seen as a valuable resource for the economies of smaller cities and towns. In fact, a 2006 news article reported

that some employers in Ontario are concerned that immigrants are unaware of job opportunities outside of the Greater Toronto Area (GTA). These employers indicate that they do not have a large enough supply of skilled and educated immigrants in areas outside of the GTA (Toronto Star, 11 March, 2006). Thus, it may be the case that immigrants' skills are in more demand outside of the major CMAs and immigrants thereby obtain greater employment success and financial rewards in these areas.

Findings from the CMA variable are particularly striking due to the fact that individuals typically immigrate to one of the three major CMAs in Canada with the assumption that they will have a greater number of opportunities, particularly with respect to employment. Secondary migration (i.e. post-arrival moves for recent immigrants) could also be a significant concern in light of these results. Newbold (2007) finds that the Montreal, Toronto, and Vancouver-Victoria CMAs simultaneous have the lowest rates of out-migration (i.e. immigrants moving from these CMAs to other areas) and the highest rates of in-migration (i.e. immigrants moving to these CMAs from other areas). Thus, despite indications of poor employment opportunities, it seems that the major CMAs in Canada continue to attract large numbers of recent immigrants. However, Newbold (2007) asserts that secondary migration decisions are often related to moving closer to family or friends. Therefore, while major CMAs may offer greater diversity and greater opportunities to live among others who speak their native language or who practice similar cultural traditions, offering "institutional completeness"[14], living in a major CMA is not found to provide an advantage to immigrants in terms of obtaining employment in their intended occupations or obtaining jobs with higher wages or prestige scores. A potential explanation is that immigrants who live in other areas of Canada are more likely to have pre-arranged employment; however, a preliminary test for this did not indicate any significant results. In addition, because the first measurement of CMA took place up to six months after an immigrant's arrival in Canada, he or she may have moved out of a major CMA to obtain employment elsewhere. Thus, the finding that

[14] Institutional completeness is a term used by Breton (1964) which refers to a community in which a large number of social institutions provide services in a particular language which is believed to strengthen ethnic cohesiveness. With respect to immigrant communities, this language typically reflects a "non-official" language in Canada.

living outside of a major CMA results in greater employment success may be in part due to the mobility of immigrants following their arrival in Montreal, Toronto, or Vancouver to areas which offer greater employment opportunities for highly trained immigrants. Therefore, there is likely a more complex answer to these findings and further research which specifically examines why immigrants who live outside of major CMAs experience greater employment success is needed.

Discussion of Key Findings: Human Capital Variables

As with the ascribed and demographic factors, the human capital variables also contribute several important findings to the study of immigrant employment success in Canada. Results from the language proficiency variables are consistent across all models. Whether or not an immigrant has previous work experience in his or her intended occupation is also a significant predictor of all dependent variables but wage. Findings from the levels of education variables are particularly interesting and differ between the first two sets of models (i.e. logistic regression and event history models) and the OLS regression models. These differences in results both support and refute some assumptions of human capital theory.

While none of the levels of education variables are statistically significant predictors of the likelihood of obtaining a job match at the unit group level, some are found to be significant predictors of job match for other levels of classification. Both immigrants with a high school education or lower and immigrants with Master's degrees or higher have greater odds of obtaining a major group job match and a skill level match than those with Bachelor's degrees. Immigrants who have completed trade school or community college and immigrants with Master's degrees or higher are also more likely to obtain a skill type match than Bachelor's degree holders. Similar results are found in some of the event history models (Models 6d, 7d, and 8d). These results indicate that immigrants who have a high school education or lower and immigrants who have Master's degrees or higher obtain job matches more quickly than immigrants with Bachelor's degrees only. Immigrants who have completed trade school or college programs also obtain major group and skill level job matches at a faster rate than Bachelor's degree holders.

Overall, these results indicate that immigrants who hold Bachelor's degrees experience greater difficulty in obtaining a job match when compared to those who have lower and higher levels of education. These findings both support and counter this research hypothesis that immigrants with lower levels of education experience greater success in obtaining job matches, indicating that a more nuanced approach is required. While results from the "Master's Degree or Higher" variable support the human capital assumption that a higher level of education translates into greater employment success, human capital theory is not particularly useful as a general theory to explain the relationship between immigrants' levels of education and their success in obtaining job matches. Although immigrants with Master's degrees experience greater success in obtaining a job match than those with Bachelor's degrees, immigrants who hold Bachelor's degrees also experience more difficulties in the labour market than those with a high school education or lower and those who have completed trade school or college. Previous literature has also found that foreign Bachelor's degrees are less recognized by employers than higher degrees (Reitz, 2003).

The fact that immigrants with Master's degrees and higher level degrees obtain job matches more readily than those with Bachelor's degrees may be attributable to different, but related, aspects of the hiring process. First, immigrants with credentials above the "minimum requirement" of a job likely have an advantage due to their place in the hiring "queue". According to queuing theory, employers often form ideas of a particular order, or "queue", of potential employees (Reskin and Roos, 1990). Thus, individuals who hold credentials signifying higher abilities than other individuals are placed higher in the queue (i.e. they will get the job before those with "lesser" credentials). Higher level degrees also act as "market signals" to potential employers, indicating the abilities of a potential employee (Hunter, 1986:99). Therefore, immigrants with a level of education higher than a Bachelor's degree may be more desirable because their credential signifies increased specialization which may translate into a greater ability to learn "certain technical and social requirements of occupations" than others (Hunter, 1986:100). Therefore, even though Bachelor's degree holders possess the skill level required to work in their intended occupations, they may be experiencing less success in obtaining

employment in these occupations than higher degree holders who have more than the minimum skill level required. The education findings are also indicative of the fact that immigrants with higher level degrees have less competition in the labour market than those with Bachelor's degrees only. These findings also suggest a trend within the wider labour market in Canada in which a Bachelor's degree has decreased in importance in favour of higher-level degrees. Thus, the advantage of "over-education" among the immigrant population may be a reflection of this type of advantage among the general population.

These results also reflect the types of occupations that immigrants with differing levels of education seek, as well as the varied needs of the Canadian labour market. First, the intended occupations of immigrants with lower levels of education (e.g. "High School Diploma or Lower") may be more readily obtained in the Canadian labour market than those occupations requiring a Bachelor's degree due to the types of jobs they seek. That is, the obstacle of having one's foreign credentials recognized is likely not as problematic, or may not be an issue at all, for immigrants who seek jobs that require low levels of education. Therefore, despite media attention on immigrants who are seeking high-status occupations, those seeking occupations that require low levels of skill obtain employment in their intended occupations more quickly in comparison. In addition, Canada is actively trying to recruit workers into fields that require college, trade school, or apprenticeship training due to steady growth in the skilled trades since the 1990s (Pyper, 2008). Thus, immigrants with this level of training may also be at an advantage in obtaining employment in their intended occupations than those seeking occupations that require a Bachelor's degree.

While human capital theory generally cannot be used to explain the education results from the logistic regression and event history models, it is useful in understanding the results from the occupational prestige and wage regression models. The findings from Model 9b indicate that those with levels of education lower than a Bachelor's degree (i.e. "High School or Lower", "Some Trade School, College, or University" and "Trade School or College Complete") obtain employment with lower prestige scores than Bachelor's degree holders. However, as expected, immigrants with a

Master's degree or higher have higher prestige scores in their most recent jobs than those with Bachelor's degrees. Within the prestige change model (Model 11c), the data indicate that immigrants who have completed some trade school, college, or university (i.e. they have not yet received a diploma or degree) experience less upward mobility than immigrants with Bachelor's degrees. The results from Model 11c also show that immigrants with Master's degrees or higher experience significantly greater upward mobility between jobs than those with Bachelors' degrees only. Therefore, even though the levels of education examined in the models are received outside of Canada, immigrants still receive an incremental labour market reward compared to those with lower levels of education. These results support the assumptions of human capital theory as they signify that immigrants with higher levels of education obtain greater rewards in the labour market (in terms of occupational prestige) than immigrants with lower levels of education.

Similarly, results from Model 10b reveal that immigrants who have completed some trade school, college, or university earn lower wages than immigrants with Bachelor's degrees. In addition, immigrants who hold Master's degrees or higher earn higher wages in their most recently held jobs than immigrants with Bachelor's degrees only. These results indicate that immigrants who do not hold some form of completed credential are at a particular disadvantage with respect to their wages compared to Bachelor's degree holders. These findings also support the hypothesis that immigrants with higher levels of education obtain higher wages than those with lower levels of education and offer further support to the assumptions of human capital theory.

Although the variables are slightly different, level of education is also a significant predictor of prestige and wage within the engineer sample. Immigrants who hold Master's or professional degrees in this sub-sample obtain jobs with higher prestige scores than Bachelor's degree holders (about 2 points higher). Immigrants in this sub-sample who hold Doctorate degrees have a greater difference in prestige compared to those with Bachelor's degrees only (about 5.5 points higher). The data also reveal that immigrants who intend to work as engineers and hold Doctorate degrees obtain higher wages than those with Bachelor's degrees (Model 15b). These findings indicate that the type of higher

degree that is obtained matters for immigrants who intend to work as engineers. Immigrants in this sub-sample with higher levels of education can expect a greater degree of employment success with respect to the social standing and financial standing of their jobs in comparison to immigrants with a Bachelor's degree only. Although these results indicate that the engineer sample is not unique with respect to the general relationships between their levels of education and the prestige scores and wages, they do reinforce the assumptions of human capital theory.

All of the logistic regression and event history models also provide evidence that an immigrant's proficiency in both English and French has a significant influence on the likelihood and hazard rate of him or her obtaining a job match. Results indicate that the higher an immigrant's proficiency in English or French, the greater the likelihood that he or she will obtain employment that matches his or her intended occupation. English and French language proficiency are also highly significant predictors of the likelihood of a unit group job match for the engineer sample. Furthermore, the higher an immigrant's proficiency in English or French, the more quickly he or she obtains a job match. These findings support this research hypothesis that an immigrant's proficiency in an official language is influential to his or her successful economic integration.

In addition to the job match models, the language proficiency variables also have positive relationships with the occupational prestige scores and wages of immigrants' most recently held jobs. These relationships are generally maintained in the change models, although the French language proficiency variable loses statistical significance in the change model for wage (Model 12c). Findings from the engineer sample also indicate positive relationships between English and French language proficiency and the prestige scores and wages of these immigrants' most recent jobs. These results support the theory that knowledge of one or both of Canada's official languages has a positive and significant effect on various dimensions of immigrants' economic integration. Results from these models in particular signify that the social standing and financial rewards of an immigrant's employment in Canada are in part dependent on his or her proficiency in English or French. These results also continue to support the assumptions of human capital theory in that language proficiency in

an official language is a marketable skill for immigrants. Also, because language proficiency can be improved through additional education and training, this skill can be strengthened over time and contribute to future employment success.

The last human capital variable entered in the models, previous work experience in one's intended occupation prior to immigration, is significant across all of the logistic regression and event history models. The data indicate that immigrants who have previous work experience are more likely to obtain a job match and obtain job matches at a faster rate than those who do not work in their intended occupations prior to immigrating. Immigrants with previous experience in the engineer sample are also more likely to obtain unit group job matches. Results from the prestige model (Model 9b) indicate that immigrants with previous experience in their intended occupations obtain jobs with higher prestige scores than those without this type of work experience. These results support this research hypotheses which anticipate that those with previous foreign experience have greater employment success in Canada. Findings from these models are also in accordance with human capital theory which anticipates that the more relevant work experience an individual accumulates the more successful he or she will be in the labour market.

The positive relationships between previous work experience in one's intended occupation and employment success also suggest that foreign work experience may be more valued within the Canadian labour force than previous literature has suggested (e.g. Basran and Zong, 1998). Although there is some discrepancy within earnings studies about whether foreign work experience yields higher (e.g. Goldmann et al., 2009) or lower financial returns (e.g. Aydemir and Skuterud, 2004), results from this research indicate that those who have worked in their intended occupations prior to immigrating are more likely to obtain job matches and obtain these matches more quickly than immigrants without previous work experience relevant to their intended occupations. This discrepancy may be due to the measurement of foreign experience itself. While previous literature tends to approximate years of foreign work experience, often comparing the return to years of Canadian experience versus foreign experience, this research specifically measures whether or not an immigrant has foreign work

experience in his or her specific intended occupation. Therefore, although foreign work experience may not be as valued as Canadian work experience, those immigrants who have experience in their intended occupations prior to immigrating are at a much greater advantage than those with no previous experience in their intended occupations.

While these results do not necessarily indicate that employers formally recognize immigrants' foreign experience, they do indicate that this experience provides them with some type of advantage in the Canadian labour market. This may be due to the type of knowledge that one obtains with experience in his or her occupation which may be drawn upon to better identify useful networks in seeking employment in his or her particular field. Immigrants with previous experience in their intended occupations may also have better familiarity with the type of companies or industries that are more likely to employ individuals in their field of interest. Knowledge derived from previous experience in an immigrant's intended occupation may also help him or her obtain recognition of his or her credentials or in obtaining promotions more quickly than other immigrants who do not have this type of knowledge. This may be particularly true of immigrants who must write technical exams or undergo other certification procedures to practice their occupation in Canada. For example, results from Model 13 indicate that foreign work experience provides an advantage to immigrants who intend to work as engineers. While employers may not formally recognize their foreign work experience, the increased knowledge immigrants obtain from their foreign experience in engineering may help them pass the required technical exams and certification procedures more easily. Therefore, although an immigrant's previous experience may not be recognized by potential employers, it does appear to be useful to an immigrant's economic integration in some form.

Discussion of Key Findings: Occupational Characteristics

The key findings from the occupational factors indicate various influences on immigrants' employment success. The socio-economic status of an immigrant's intended occupation is significant across most of the logistic regression and event history models. The remaining characteristics, occupational aptitudes and the data, people, and things (DPT) complexity scores provide less consistent results. Overall,

while the SES of an immigrant's intended occupation is a highly reliable predictor of the likelihood and rate of obtaining a job match, the influence of the remaining occupational characteristics are tenuous.

The socio-economic status (SES) of an immigrant's intended occupation has a negative relationship with the likelihood of a job match and with the hazard rate of a job match at the unit group, major group, and skill type levels when all other factors are controlled. While the SES of an immigrant's intended occupation is not significant in the full models measuring skill level match when all other occupational characteristics are controlled, it is significant in these models when it is the sole occupational characteristic included (Models 4c and 8c). The loss of statistical significance in these models is likely related to the close relationships between the SES of one's intended occupation, the other occupational characteristics, and the skill level measurement.

The results signify that the higher the SES score of an immigrant's intended occupation, the lower his or her employment success in terms of the likelihood of obtaining a job match and the rate at which he or she obtains a job match. These results indicate that there is a form of social closure within Canada's labour force, implying that immigrants who seek higher status occupations face more exclusionary practices in trying to obtain employment in their intended occupations than those seeking lower status occupations. While it may be argued that higher status occupations are more difficult to obtain to begin with due to a lengthier amount of education or training required, the descriptive data in Table 6.5 indicate that the majority of immigrants arrive in Canada with the appropriate educational credentials (in terms of skill level) for their intended occupations. In addition, the effect of the SES of intended occupation on the likelihood of obtaining a job match is upheld when ascribed, demographic, and human capital factors are controlled. Thus, the status of an immigrant's intended occupation is influential to the likelihood that he or she will obtain employment in that occupation in Canada. This may be the result of discriminatory hiring practices based on a belief that immigrants do not obtain equivalent education or training and cannot adequately fulfill the duties required of a high-status

occupation or systemic discrimination. However, any authoritative assertions of discriminatory hiring practices among certain occupational groups would require further research.

Results from the event history analyses also indicate that immigrants experience social closure with respect to the rate at which they obtain job matches. The findings suggest that immigrants who intend to work in high-status occupations obtain job matches at a slower rate than immigrants whose intended occupations have lower SES scores. Again, this indicates that the process of social closure is at work, preventing immigrants who seek high-status occupations from obtaining job matches at the same rate as those who seek low-status occupations. This type of closure may in part be due to the process of credential recognition or certification that is required for many high-status occupations (e.g. physicians, engineers). Because high-status occupations often require specific qualifications, training, or licensing within Canada, immigrants typically have to undergo additional testing and training to obtain a licence or other types of official certification. Therefore, seeking employment in these types of occupations is likely to be a longer process than the employment process of immigrants who seek employment in lower status occupations.

Of the occupational aptitude variables, only the "Clerical Perception" aptitude has statistically significant and positive relationships with the likelihood of obtaining a job match and the hazard rate of obtaining a job match for all levels of occupational classification. The results indicate that immigrants whose intended occupations require a high level of ability in conducting clerical tasks (i.e. the ability to observe differences in copy, etc.[15]) are more likely to obtain job matches and do so more quickly than those whose intended occupations require a low aptitude in clerical tasks. While this finding cannot be used to directly judge the status of an occupation, it does indicate that certain job tasks that are required for immigrants' intended occupations influence the likelihood that he or she will obtain a job match and the rate at which a match is obtained.

[15] All descriptions of occupational aptitudes are derived from Human Resources and Social Development (2006). Complete definitions of each aptitude can be found in Appendix A.

While none of the remaining occupational aptitudes are significant predictors of all four of the dependent variables in the logistic regression models, some aptitudes are statistically significant predictors of job match at differing levels of classification. Some of the results support my general hypothesis that the higher the aptitude required of one's intended occupation, the less likely it is that he or she will obtain a job match. Both the "Spatial Perception" variable and the "Manual Dexterity" variable have statistically significant and negative relationships with the likelihood and hazard rate of obtaining a skill type match. Thus, an immigrant who intends to work in an occupation which requires a high level of spatial perception, such as the occupation of "civil engineer", is less likely to obtain a skill type match than an immigrant who seeks employment as a legal secretary, an occupation that requires a low level of spatial perception. A civil engineer would also be predicted to obtain a skill type match at a slower rate than a legal secretary based on these data. Similar relationships are also found for those who intend to work in an occupation that requires a high level of manual dexterity (e.g. dentist).

Results from the "Verbal Ability" aptitude variable are of particular interest. Findings from this variable also support my original hypothesis and suggest that immigrants who intend to work in an occupation that requires the highest level of aptitude in verbal ability (e.g. university professor) are less likely to obtain employment that matches the skill level of their intended occupation, and do so at a slower rate, than immigrants who intend to work in an occupation requiring the lowest level of aptitude in verbal ability (e.g. labourer in plastic products manufacturing). Therefore, the verbal ability of an immigrant's intended occupation has a significant effect on the likelihood of obtaining employment commensurate with his or her education or training, as well as the rate at which he or she obtains a job match. In some respects, this finding echoes the results from the language proficiency variables. That is, the more an occupation requires one to communicate in one of Canada's official languages, the less likely an immigrant will obtain employment in that occupation if his or her proficiency in English or French is low. These findings are in accordance with Chiswick and Taengnoi's (2007) study which finds that highly skilled immigrants with limited English proficiency in the United States are more

likely to be in occupations that require low levels of communication (e.g. computer programming). However, some evidence has shown that even if an immigrant's proficiency in an official language is high, they may still experience discrimination if they have a "foreign" accent (e.g. Henry, 2004; Creese and Kambere, 2003, Henry and Ginsberg, 1985). Therefore, the difficulties encountered by immigrants whose first language is not English or French may extend beyond their proficiency in an official language. For these immigrants, difficulties in obtaining a job match in an occupation that requires a high level of verbal communication may persist despite a high proficiency in English or French due to employers' perceptions that they do not have full command of these languages. This assertion would require further examination in future research as some immigrants do voice concern over discrimination based on their accents (Toronto Star, 7 August, 2008).

While the above findings support my general hypothesis regarding the occupational aptitude variables, some findings from the logistic regression models negate this hypothesis. The "Numerical Ability" and "Form Perception" aptitudes have positive and significant relationships with of the likelihood and hazard rate of obtaining a job match at various levels of occupational classification. These findings indicate that immigrants whose intended occupations require high levels of ability in certain types of job tasks are not necessarily at a disadvantage, depending on the job task in question.

While these findings counter my general hypothesis regarding the relationship between aptitudes required of occupations and immigrant employment success, the different aptitudes required of occupations may also be related to their SES scores or educational requirements. For example, although the occupation of "medical secretary" requires a fairly high aptitude in clerical perception, the SES score of this occupation is relatively low. Conversely, the occupation of "judge" requires a low level of clerical perception but holds a very high SES score. Therefore, when one considers both of these factors, the findings indicate similar relationships. Although some aptitudes indicate that certain occupations require higher levels of aptitude in various types of job tasks, this does not necessarily mean that these occupations are of higher status. The interpretation of these results must therefore concentrate on the specific aptitudes examined and cannot be used to make generalizations about the

relationship between the status of the occupations and employment success. Conclusions should instead be based on the aptitude required in each separate job task.

The remaining occupational variables, the complexity of working with data/information, people, or things (DPT scores) are significant predictors in some of the logistic regression and event history models. The results show that the higher the complexity of job tasks involved in working with data that is required of an immigrant's intended occupation, the less likely it is that he or she will obtain a skill type match. This relationship is also found in predicting the rate at which an immigrant obtains a skill type match. Thus, for example, an immigrant who intends to work as a chemical engineer is predicted to experience less employment success with respect to obtaining a skill type match than an immigrant who seeks employment as a truck driver. Similarly, immigrants whose intended occupations require a high level of complexity when working with things (e.g. medical laboratory technician) are less likely to obtain a skill level match and do so at a slower rate than those whose intended occupations require a low level of complexity when working with things (e.g. retail salesperson). Findings from the "People" variable indicate a different relationship. The data show that the higher the complexity required by an immigrant's intended occupation in working with people, the greater the likelihood that he or she will obtain a skill type match, and will do so at a faster rate, than an immigrant whose intended occupation involves a low level of complexity in working with people. These findings counter my original assumption that immigrants whose intended occupations require a high level of complexity in working with people experience more difficulty obtaining a job match. Again, these findings may also be related to the SES scores associated with these occupations.

The exploratory variable which measures the number of jobs an immigrant has held since immigrating to Canada is included in all of the statistical models. This variable is examined in an effort to determine whether immigrants who hold several jobs in Canada benefit from accumulating Canadian work experience or if holding several "survival" jobs (i.e. jobs that an immigrant holds solely as a means of supporting him or herself and his or her family) hinders immigrants' employment success in Canada. Results from the logistic regression models indicate that for every additional job an

immigrant holds in Canada, his or her odds of obtaining a skill type match increases by 9%. This finding supports the general assumptions of human capital theory which presume that the more work experience an individual has the greater employment success he or she will enjoy. This result also supports some literature that suggests that the more Canadian work experience an immigrant obtains the greater success he or she will have in the Canadian labour market (e.g. Reitz, 2001a; Basran and Zong, 1998). Therefore, having a "survival" job may not be detrimental to obtaining a skill type match. However, we must again take into account that the job match in this case is at a very broad level of occupational classification.

Results from the event history models indicate that an inverse relationship exists between the number of jobs an immigrant has held and the rate at which he or she obtains a job match. For every additional job an immigrant holds, the rate at which he or she obtains a unit group job match decreases. This counters the above results and suggests that survival jobs hinder immigrants' ability to obtain employment in their intended occupations and counters human capital theory to a certain extent. While this result negates the assumption that more Canadian work experience aids immigrants in the labour market, one must also consider the type of work experience that is obtained. If an immigrant's Canadian work experience is not related to his or her intended occupation it may be irrelevant to his or her search for appropriate employment and not "count" as useful human capital. This may explain the seemingly contradictory finding in the logistic regression result discussed above as it only represents a match at the skill type level. The factor of time must also be accounted for when interpreting results from the event history models. The fact that the more jobs an immigrants holds, the more time he or she dedicates to these non-match jobs must be considered. Due to the time spent working in survival jobs, those who hold several of these jobs are likely to take longer in obtaining appropriate employment as the time spent working in non-match jobs detracts from his or her ability to search for and obtain a job match.

An inverse relationship also exists between the number of jobs an immigrant has held and the prestige score and wage of his or her most recent job. These relationships are also found in the

regression models for the engineer sample. Thus, contrary to the human capital theory assumption that more work experience leads to greater rewards in the labour market, holding several jobs after arriving in Canada is detrimental to immigrants' employment success in terms of their occupational prestige scores and weekly wages. This finding provides further evidence that immigrants do not necessarily benefit from working several jobs after arriving in Canada. An immigrant who "jumps" from one job to another likely does not accumulate the same quality of work experience that would help him or her to obtain jobs with higher prestige scores or wages. In addition, if the jobs that they hold are low-status or low-wage jobs to begin with (as survival jobs tend to be), and do not provide the opportunity for skill or knowledge development, the theory that greater Canadian experience leads to greater labour market rewards may not apply. These findings suggest that it is not just any kind of Canadian work experience that assists an immigrant in obtaining employment success within his or her first two years in Canada. General assertions of the benefits of Canadian work experience based on the assumptions of human capital theory should be qualified by noting that the type of Canadian experience likely has an impact on an immigrant's rewards in the labour market. Further research may be useful to examine whether the types of survival, or "non-match", jobs held by immigrants have differing effects on an immigrant's employment success over time.

As the prestige and wage change models indicate, the first job that an immigrant holds in Canada is an important factor in his or her future employment success in Canada, at least within two years of arrival. Thus, in accordance with the above discussion of survival jobs, one can ascertain that immigrants will ultimately obtain jobs with higher wages or prestige scores if they do not immediately accept a low-wage or low-status job, instead waiting to obtain employment that is commensurate with their qualifications. The reality of this situation is clearly problematic as many immigrants do not have the luxury of waiting for an "acceptable" job; the purpose of the survival job is to obtain any income regardless of whether it is considered "acceptable" employment. However, if an immigrant has the ability to remain unemployed until he or she can obtain employment that is relatively commensurate

with his or her qualifications, he or she can expect to have greater employment success in subsequent jobs.

Summary

This chapter discusses the major findings from the descriptive data and statistical models. Generally it is found that few immigrants obtain job matches within their first two years in Canada, particularly at the unit group level of occupational classification. The number of matches increases when examining broader levels of classification; however, these results do not necessarily indicate employment in an individual's intended occupation. In addition, most immigrants with job matches obtain these matches soon after arrival which suggests that most immigrants with job matches likely have arranged employment in their intended occupations prior to arrival in Canada.

Findings from the statistical models suggest that several predictor variables are significant to immigrants' employment success. Of note, visible minority immigrants generally experience less employment success than non-visible minority immigrants, indicating that racial discrimination may take place within the Canadian labour market. Immigrants living in major CMAs also consistently experience less employment success than immigrants living elsewhere in Canada across different measurements. This may be an indication of significant differences in the employment opportunities, the amount of competition from new native-born labour market entrants, and/or employer attitudes toward hiring immigrants in different areas of Canada. Several human capital factors are also influential to immigrant employment success, with proficiency in an official language being the most reliable predictor across models. Human capital theory is generally upheld by most of the human capital variables tested. Lastly, immigrants seeking high-status occupations are found to have more difficulty obtaining job matches than those seeking lower status occupations. This indicates that immigrants seeking occupations of high status encounter a process of social closure in gaining access to these occupations. While this chapter provides an in-depth discussion of the results, a general overview of the study and conclusions regarding the findings will be presented in the following chapter (Chapter Twelve).

Chapter Twelve

Conclusion

The primary goal of this research was to examine various measures of employment success of recent immigrants to Canada. A main focus was to account for the process of recent immigrants' economic integration over time, specifically during their first two years in Canada. This was accomplished in several ways. First, the logistic regression models examined whether various predictor variables influence the likelihood of a job match over this time period; up to nine possible jobs were examined to determine whether a job match had occurred at any point since arrival in Canada. Event history analyses allowed for an examination of whether the same set of predictors have a relationship with the rate at which immigrants obtain a job match. The employment process and success of immigrants was also measured by the occupational prestige and wage regression models that examined the change that occurred in these variables between an immigrant's first job and most recently held job in Canada. These analyses provide several important and interesting findings that are discussed in detail in Chapter Eleven. The following chapter offers conclusions and final comments about the study. First, the research questions developed in Chapter Four are revisited with a brief discussion of how the findings "answer" each of these questions. A discussion of the theoretical contributions is also addressed, followed by a discussion of policy implications. In addition, limitations of this study are discussed with a focus on how these restrictions can inform future research. Lastly, final comments on the contributions that this study makes as well as suggestions for others examining the economic integration of immigrants to Canada are made.

Revisiting the Research Questions

The following section addresses each research question in turn with a brief discussion of what the major findings contribute to answering each question. Where appropriate, references to how these findings correspond with previous literature are made. For further detail and hypotheses relating to these research questions, refer to Chapter Four.

- *Do immigrants' ascribed characteristics (sex, age, visible minority status, region of origin) influence their employment success in Canada? If so, is this an indication of discrimination?*

Results from the models strongly suggest that immigrants may experience racial discrimination within the Canadian labour market. The results show that visible minority immigrants are both less likely to obtain job matches in their intended occupation and obtain job matches at a slower rate than non-visible minority immigrants. This finding is in accordance with several other studies that find visible minorities to be at a disadvantage in terms of earnings (e.g. Li, 2008, 2000; Pendakur and Pendakur, 2007, 2000; Walters et al., 2006; Picot and Sweetman, 2005) and occupational attainment (e.g. Chui et al., 2004; Thompson, 2000). Some of the models also indicate that older immigrants may experience age discrimination as they are both less likely to obtain employment matching their intended occupations and take longer to obtain job match than younger immigrants. In addition, older immigrants have lower prestige scores and wages in their most recently held jobs in Canada. This finding echoes that of other research (Anisef et al., 2003).

The remaining ascribed variables offer various results and do not provide a clear picture of whether discrimination is occurring with respect to immigrants' gender or regions of origin. While the findings indicate that immigrant men obtain job matches at the major group and skill type levels at a faster rate than immigrant women, which is similar to findings by Chui et al. (2004), there is no significant difference between these groups in terms of the likelihood of obtaining a job match during their first two years in Canada. However, immigrant men do experience an earnings advantage in their most recently held jobs compared to women. In general, individuals from Africa, Asia, and the Caribbean and Guyana experience significantly less employment success than immigrants who arrive from North American nations, particularly with respect to obtaining a skill type or skill level match. Individuals who arrive from Asia, the Caribbean or Guyana, and Europe are also found to have lower prestige scores in their most recently held jobs in Canada. However, in general, individuals from Asia and Europe do not fare as badly as those from the Caribbean or Guyana.

- *Does the admission category under which an individual immigrates to Canada influence his or her employment success in Canada? Do those who immigrate under the "Skilled Worker" category experience greater employment success than other immigrants?*

The findings regarding immigrant admission category generally indicate that this variable is not significant in predicting immigrant employment success. However, as noted previously, these results may be due to the fact that the sample overwhelmingly consists of skilled workers. Only the "Business" admission category is statistically significant in a full model. This result indicates that business immigrants are more likely to obtain skill type matches than skilled worker immigrants during their first two years in Canada. Thus, business immigrants may experience greater success than skilled workers, at least with respect to obtaining employment in the same industries as their intended occupations.

- *Do immigrants who live in a major CMA (i.e. Montreal, Toronto, or Vancouver) experience greater employment success than immigrants who live elsewhere in Canada?*

Immigrants living in a major CMA experience less employment success than immigrants living elsewhere in Canada. This finding is consistent with respect to the likelihood of obtaining a job match, the rate at which an immigrant obtains a job match, and the occupational prestige score and wage in an immigrant's most recently held job in Canada. This finding is similar to research conducted by Bernard (2008) who asserts that immigrants in smaller communities obtain higher earnings than those in major cities and results obtained by Chui et al. (2004) who find that immigrants in Montreal and Vancouver are less likely to be employed than immigrants who live elsewhere in Canada.

- *Are immigrants with higher levels of education less likely to obtain job matches than immigrants with lower levels of education? Do immigrants with higher levels of education obtain job matches at a slower rate than those with lower levels of education?*

While the findings vary across models, the general pattern that emerges signifies that immigrants whose levels of education are both lower than and higher than a Bachelor's degree experience greater employment success than those with a Bachelor's degree. More specifically,

immigrants with a high school diploma or lower and immigrants with a Master's degree or higher are more likely to obtain major group and skill level matches and obtain these matches more quickly than those with a Bachelor's degree. Thus, Bachelor's degree holders experience less employment success compared to both those who have higher and lower levels of education. These findings are in accordance with conclusions made by Reitz (2003) who finds that Bachelor's degree holders encounter the greatest difficulty in gaining recognition of their credentials.

- *Do immigrants with higher levels of education obtain employment with higher incomes or occupational prestige scores than those with lower levels of education?*

Immigrants with higher levels of education obtain both higher wages and higher occupational prestige scores in their most recently held jobs than immigrants with lower levels of education. Immigrants with Master's degrees or higher are employed in occupations with higher prestige scores and higher wages than Bachelor's degree holders while immigrants with only some trade school, college, or university education have significantly lower wages than those holding a Bachelor's degree. Within the engineer sub-sample, the results also indicate that immigrants with a Doctorate degree obtain higher wages than those with a Bachelor's degree.

- *Do immigrants with foreign work experience in their intended occupations experience greater employment success than immigrants without previous work experience in their intended occupations?*

Immigrants with work experience in their intended occupations prior to immigrating experience greater employment success during their first two years in Canada than immigrants without such experience. This finding is consistent with respect to the likelihood of obtaining a job match at all four levels of occupational classification, as well as the rate at which an immigrant obtains a job match at these levels. In addition, immigrants with previous work experience obtain higher occupational prestige scores in their most recently held jobs than those without previous experience in their intended occupations. Within the engineer sample, immigrants with foreign work experience in their intended occupations are more likely to obtain unit group job matches than those without previous experience.

- *Does English and/or French language proficiency have a significant and positive relationship with an immigrant's employment success?*

Language proficiency in either English or French has a significant and positive effect on an immigrant's employment success. The higher an immigrant's proficiency in either English or French, the more likely it is that he or she will obtain employment that matches his or her intended occupation. In addition, immigrants with higher English or French language proficiency obtain job matches more quickly than those with lower proficiency in an official language and obtain employment in jobs that have higher occupational prestige scores and higher wages than those with lower levels of proficiency. These findings support previous research by Grondin (2007) and Yasmin and Abu-Laban (1992); however, they counter Chui et al.'s (2004) conclusion that language proficiency is not a significant predictor of obtaining employment similar to the skill type of an immigrant's pre-migration occupation.

- *Are immigrants who seek high-status occupations less likely to obtain job matches than those seeking lower status occupations? Do immigrants who seek high-status occupations obtain job matches at a slower rate than those seeking lower status occupations?*

Immigrants who seek occupations with high socio-economic status scores experience less employment success than those who seek occupations with low SES scores. Specifically, immigrants seeking high-status occupations are less likely to obtain employment matching their intended occupations and they obtain job matches at a slower rate than those who seek occupations of lower status. Thus, the SES of an immigrant's intended occupation has a significant influence on his or her employment success in Canada.

- *Are immigrants whose intended occupations involve high aptitudes or high levels of job task complexity less likely to obtain job matches than those whose intended occupations involve lower aptitudes and job task complexity? Do they also obtain job matches at a slower rate than immigrants whose intended occupations involve lower aptitudes and job task complexity?*

There are no consistent findings regarding the influence of occupational aptitudes or job task complexity on immigrants' employment success. While some results indicate that the higher an occupational aptitude, the more likely or more quickly a job match will occur (e.g. "Clerical Perception"), others indicate that an inverse relationship exists (e.g. "Verbal Ability"). Results from the complexity of job task variables are similarly inconsistent, indicating that a general conclusion about these occupational characteristics cannot be made. However, it is likely that the strong influence of the SES of immigrants' intended occupations is related to these occupational characteristics. Thus, it is apparent that measuring the SES of immigrants' intended occupations provides more reliable results than measuring the influence of other occupational characteristics.

- *Does the number of jobs an immigrant holds in Canada have a positive or negative relationship with an immigrant's employment success?*

The number of jobs an immigrant holds has a significant influence on the likelihood of a skill type match, the rate at which an immigrant obtains a unit group match, and the prestige and wage of an immigrant's most recently held job. While the results indicate that the higher the number of jobs an immigrant holds, the more likely he or she is to obtain a skill type match, the remaining results indicate the opposite relationship with employment success. Generally, one can conclude that the more jobs an immigrant holds after immigrating, the more slowly a unit group job match will be obtained and the lower an immigrant's wage and prestige score will be in his or her most recently held job in Canada. In addition, the greater the number of jobs immigrants within the engineer sample hold, the lower their prestige scores and wages in their most recent jobs. Thus, holding numerous jobs after immigrating more often has a negative relationship with indicators of an immigrant's overall employment success.

- *What factors (i.e. ascribed, demographic, human capital, and/or number of jobs held) influence the change in income and prestige scores between an immigrant's first job and most recently held job in Canada?*

Several factors are found to have an influence on the change in immigrants' incomes or prestige scores between jobs in Canada. Interestingly, very few predictors overlap in statistical

significance between these two dependent variables. Of the ascribed variables, age is a significant predictor of the change in immigrants' occupational prestige scores between jobs. Older immigrants experience less upward mobility than younger immigrants. Similarly, immigrants from Asia and the Caribbean or Guyana experience less upward mobility in their prestige scores between jobs than those from North America. Sex is only a significant predictor for the wage model, indicating that immigrant men experience greater positive change in their wages between jobs than immigrant women.

With respect to the human capital factors, two variables are significant predictors of mobility for both the prestige and wage models. First, immigrants with a Master's degree or higher degree experience greater upward mobility between jobs than Bachelor's degree holders. Immigrants with a high level of English language proficiency also experience greater upward mobility between jobs with respect to their prestige scores and wages than those with lower levels of English proficiency. Lastly, the French language proficiency is a significant predictor of mobility between jobs, but only for the prestige model. The results indicate that immigrants with a high level of French language proficiency experience greater upward mobility with respect to their prestige scores between jobs than those with low levels of French proficiency.

Theoretical Contributions

The theoretical perspectives used to develop the statistical models are supported by the findings to some extent. When considering the discrimination thesis, the findings suggest that various types of discrimination may occur with respect to some aspects of immigrant employment success (e.g. racial discrimination, age discrimination). The assumption that immigrants who arrive from non-traditional source regions experience less employment success than those from traditional source regions is also supported with respect to the likelihood of a job match (particularly for a skill type or skill level match) and the hazard rate of a job match for all occupational classifications but the unit group level. Little evidence is provided in support of the theory of sex discrimination, although immigrant women do obtain significantly lower wages than immigrant men. However, as discussed previously, the results

concerning the sex variable may be affected by the specific sample used for these analyses in which considerably more men are represented than women.

Human capital theory is largely supported by the findings from this research. An extension of this theory also provides support to some of Davis and Moore's (1945) assertions that individuals are rewarded in the labour market based on principles of merit and achieved characteristics. This is particularly true for immigrants with respect to their occupational prestige scores and wages in Canada – an immigrant's level of education and proficiency in English or French have positive and significant relationships with the occupational prestige scores and wages of his or her employment in Canada. Immigrants with high levels of English and French language proficiency and those who have previous work experience in their intended occupations are also more likely to obtain a job match and are predicted to do so more quickly than those with low levels of proficiency in Canada's official languages and those without previous experience respectively. Thus, these human capital factors are influential in predicting immigrants' economic integration in Canada.

The assumptions of human capital theory are also challenged to some extent when examining the likelihood and hazard rate of obtaining a job match. Findings from the logistic regression and event history models show that immigrants with Bachelor's degrees are at a disadvantage in obtaining a job match when compared to immigrants who have a higher level of education (which supports human capital theory) and those who have a lower level of education (which negates human capital theory). These findings suggest that human capital theory is not useful in explaining the labour market outcomes of the immigrant population, at least with respect to measurements of obtaining a job match. However, a more accurate interpretation of these findings is that human capital theory may not be as appropriate when examining the effect of education on these particular measurements of employment success. This is due to the fact that obtaining a job match is not a labour market reward that can be measured in a hierarchical manner. For example, while it is logical that a higher level of education translates into a higher occupational prestige score, the labour market success measured by the job match variable is more complex. An individual who obtains a job match in a low-status or low-wage

job is considered to be more successful than an individual who does not obtain a job match in a high-status, high-wage job. In this case, the assumptions of human capital theory are somewhat reversed as those with lower levels of education are more likely to obtain a job match due to the very nature of occupations that do not require higher levels of education. Individuals with low levels of education are more likely to seek low-status occupations that can be obtained more easily than high-status occupations. It seems that the notion of what human capital theories generally regard as employment success does not correspond with the job match measurement used in this study.

Generally, assumptions that the foreign credentials of highly educated immigrants are not recognized by Canadian employers are not completely supported by the results, as immigrants with higher degrees fare better in the labour market than those with a Bachelor's degree only. However, this merely suggests that *within* the immigrant population, those with higher degrees have more employment success than those with Bachelor's degrees. A comparison of the employment outcomes of these individuals with Canadian-born workers may reveal a disadvantage. In addition, the results which indicate that those with college or trade school credentials experience greater employment success than those with Bachelor's degrees indicates that the non-recognition of credentials is less of a problem for immigrants who have received training that is more concentrated on vocational skills.

The theory of exclusionary social closure based on the socio-economic status of immigrants' intended occupations is supported by findings from the logistic regression models and event history models. The data consistently show that immigrants who intend to work in high-status occupations experience less employment success in Canada than immigrants who intend to work in low-status occupations. These findings may in part be supportive of Parkin's (1979) theory that exclusion from certain occupations is based on their control of institutionalized procedures involving licensing, credential recognition, or specific training (e.g. apprenticeships or residency placements for medical doctors that must be obtained within the Canada). These results also suggest that this process is a form of discrimination that immigrants experience while seeking employment in high-status intended occupations.

The remaining occupational characteristics do not provide consistent evidence to develop a general theory about the relationship between the complexity and aptitudes associated with the job tasks of immigrants' intended occupations and their employment success. While there is some support for the hypothesis that the higher the aptitude required, the less employment success an immigrant will experience (e.g. aptitudes in verbal abilities, spatial perception, and manual dexterity and complexity in working with data and things), there are also findings that indicate the opposite. These findings suggest that any theory of exclusionary closure from occupations based on the aptitudes or complexity of job tasks associated with them must be based on the specific responsibilities associated with each. In addition, one must also consider the relationship that these job tasks have with other characteristics such as the status or skill level associated with the occupation.

Findings from the exploratory variables offer some important theoretical contributions. Results from the CMA variable consistently show that immigrants living in one of the major CMAs experience less employment success than immigrants who live elsewhere in Canada. These findings indicate that immigrants may in fact be more readily accepted into the labour markets of less diverse and smaller communities in Canada. This could be due in part to a greater need for educated and skilled workers in these communities to strengthen their economies or may be attributable to the fact that immigrants have a better opportunity to develop social networks in smaller communities. Another hypothesis suggests that immigrants living in small communities are under greater pressure to become fluent in English or French than in the major CMAs and therefore experience greater employment success because of their improved language skills (Bernard, 2008).

An examination of the effect that the number of jobs an immigrant has held since immigrating also contributes some insight into immigrants' employment success over time. Although there is a positive relationship between the number of jobs an immigrant holds since immigrating and the likelihood of a skill type match, the remaining results indicate that holding several jobs hinders an immigrant's employment success. Results from the unit group event history model and the prestige and wage models show negative relationships with the number of jobs an immigrant holds and the

respective dependent variables. Therefore, holding several survival jobs is beneficial to several aspects of immigrants' employment success. In addition, the prestige and wage models indicate that the characteristics of an immigrant's first job have a significant influence on the corresponding characteristics of his or her most recently held job (i.e. occupational prestige and wage). Therefore, the accumulation of any type of Canadian work experience is not necessarily helpful to immigrants in the Canadian labour market. Rather, one can ascertain that Canadian work experience which is relevant to an immigrant's intended occupation is the type of work experience that will positively affect his or her employment in Canada. Findings from the previous work experience variable also indicate the importance of experience relevant to one's intended occupation to immigrants' employment success in Canada. Findings from this exploratory variable also suggest that the time and energy spent holding numerous survival jobs detracts from an immigrant's ability to obtain subsequent jobs that offer higher wages and higher prestige scores.

Policy Implications

Several policy implications can be suggested from the results of this study. One of the key findings relates to the success that immigrants with higher degrees (i.e. Master's degrees or higher) experience within the Canadian labour market in comparison to those with Bachelor's degrees. The results indicate that immigrants with Bachelor's degrees are at a relative disadvantage; this may in part be due to the increased number of native-born Canadians and Canadian-educated individuals (native-born or immigrants) with Bachelor's degrees. In addition, it provides an indication of preference for Canadian credentials over foreign credentials. These findings may be useful in informing Canadian immigration policy, particularly with respect to the "points" system. Although immigrants with Master's and Doctorate degrees currently receive the maximum number of education points (25 points[16]), results from the education variables suggest that it may be useful to either increase the amount of points given to this group or decrease the points given for individuals who hold a Bachelor's degree only (currently they receive 20 points). In turn, Canada may be able to select a greater number of immigrants who can

[16] Data regarding the points system are obtained from Citizenship and Immigration Canada.

integrate into the Canadian labour market more successfully as "over-education" among the immigrant population appears to provide an advantage for these individuals.

The results regarding the effect of education may also be instructive to the screening process that immigrants undergo. Because the "human capital" model is the primary basis for Canada's immigration policy in selecting economic immigrants, individuals arrive in Canada prior to having their credentials assessed. A policy in which credentials are screened pre-migration may be beneficial to this group if immigrants. This policy has proven successful in Australia where, within two years of adopting this policy, "81% of economic immigrants were securing work within six months of arrival" (Hawthorne, 2007:6).

The language proficiency variables also continue to lend support to the assumption that immigrants with greater proficiency in English or French experience greater success in the Canadian labour market. Although proficiency in an official language is already a central factor in Canada's immigrant selection policy (almost one quarter of the selection points are dedicated to proficiency in Canada's official languages), these findings indicate a need for greater access to language education programs. Although many CMAs offer general language programs (e.g. English as a Second Language) and programs that focus on teaching terminology specific to certain occupations, there is a greater need for these types of opportunities in other communities. In addition, these courses tend to target individuals who arrive as skilled workers; however, there is a need for other immigrants, such as women who immigrate as dependents, to be provided with equivalent opportunities for language training in order to be successful in the Canadian labour market.

While the results may not offer authoritative evidence of racial discrimination in Canadian society, they do indicate that visible minority immigrants experience less employment success in Canada than non-visible minority immigrants. In addition, and possibly in relation to these findings, immigrants from non-traditional source regions also experience less employment success than those from traditional source regions. Although policies already exist to combat discrimination in hiring, these results may be an indication that further examination of these policies is needed to create more

equitable hiring practices. In addition, programs aimed toward providing further education for employers regarding the credentials and quality of education received in non-traditional source countries may also be useful in addressing this type of discrimination. Changes implemented by employers themselves, such as an alteration of their application forms or hiring processes, could be helpful in preventing institutionalized discrimination. For example, the Royal Bank of Canada now refrains from asking individuals where they have received their degrees on their job applications. This is in an effort to prevent the premature dismissal (i.e. at the pre-interview stage) of qualified applicants based on the fact that their degrees are not received in Canada (Globe and Mail, 31 January, 2007).

The findings regarding the benefits of not living in a major CMA may also be of interest to policymakers. These data suggest that immigrants enjoy greater employment success when they do not immigrate to one of the "big three" cities in Canada (i.e. Montreal, Toronto, or Vancouver). While some provincial governments have expressed a desire to "regionalize" immigrants more equally (Toronto Star, 11 March, 2006), little research has been done to justify this desire. The results from this research may provide some support to this argument as they indicate that immigrants not only obtain higher wages outside of the major CMAs, but are also more likely to find employment appropriate to their qualifications. However, it is important to note that potential policy reform regarding this issue should not result in "assigning" cities or towns to immigrants upon arrival. Instead, this information may be useful to confer to immigrants prior to their arrival so that they may be able to weigh the economic benefits and costs of the areas to which they will immigrate. If future research continues to corroborate these findings, the area to which and immigrant intends to move could be integrated into the points system which could grant a greater number of points to immigrants who intend to move to areas other than Montreal, Toronto, or Vancouver.

Limitations of the Study and Suggestions for Future Research

Several of the findings from this research project have led to questions requiring future research. In particular, findings from the exploratory variables indicate that further examination is needed to fully understand the relationships that have been found. Additional research is also required to address some

of the limitations of this study and to understand other aspects of the employment process experienced by immigrants. Each of these suggestions for future research are discussed in further detail below.

One of the limitations of this study is the fact that it concentrates on only one cohort of immigrants. While this is useful within the context of examining the experiences of a group of recent immigrants, it prevents a between-cohort analysis. A study of between-cohort experiences would allow one to examine more structural explanations of immigrant economic integration such as the state of Canada's economy at each time period (e.g. via measuring unemployment rates). In addition, further examination of the intersections between different factors (e.g. race, sex, region of origin) could provide a more nuanced understanding of the influences of different characteristics. In addition, examining the employment success of recent immigrants over a longer period of time would also be useful in reaching a greater understanding of the process of their economic integration into Canadian society.

Overall, the effects of the number of jobs an immigrant has held on various aspects of employment success indicate that holding several jobs hinders immigrants' employment success. While previous research suggests that Canadian work experience is beneficial to immigrants' success in the labour market, results from this research suggest otherwise. As argued in the discussion of findings, this relationship is likely due to the types of jobs that immigrants hold when they first arrive in Canada. These "survival" jobs are typically low-wage and low-status jobs that do not offer work experience relevant to immigrants' intended occupations. This assumption should be examined further, with particular attention to determining the influence that different types of survival or "non-match" jobs have on immigrants' success in the Canadian labour market over time. For example, future research could be conducted to test whether immigrants who hold several jobs that match the skill type of their intended occupations are more likely to obtain job matches at the unit group level than those who hold several jobs that are unrelated to their intended occupations. Thus, it may be constructive to focus more on the influence of the type of Canadian work experience than the number of jobs that an immigrant has held in Canada.

Findings from the CMA variable also generate a number of questions that require further examination. While the results suggest that immigrants who live in a major CMA experience less employment success than those who live elsewhere in Canada, further research is needed to reach a greater understanding of this finding. Future studies should address whether immigrants who live elsewhere succeed due to a greater access to employment resources or other opportunities. A better understanding of this issue may also be reached through an examination of potential differences in how immigrants are received by employers in major CMAs compared to other communities: Are immigrants' foreign credentials and work experience more readily accepted by employers in smaller communities? Are immigrants more likely to obtain pre-arranged employment in smaller communities? Further research into this finding may also examine Bernard's (2008) suggestion that immigrants develop stronger social networks and better proficiency in English or French within smaller communities.

The social context into which immigrants arrive may also be an important area of future research. Of particular importance is determining what effects the attitudes of individuals in the immigrant-receiving country have on the employment success of immigrants in Canada. Some research finds that the occupational attainment of immigrants is affected by "receptivity attitudes" of individuals in the host country (DeJong and Steinmetz, 2004:93). The attitudes and decision-making behaviours of immigrants themselves may also be a fruitful path for future research. There is growing interest in the migration patterns of immigrants, particularly with respect to those who decide to leave their host country (DeJong, 2000). Future research may address this by examining whether recent immigrants to Canada who leave (either to another country or back to their country of origin) do so because of an inability to attain upward mobility in their new country or as a consequence of a "short-term crisis-induced" temporary migration strategy (DeJong, 2000:317). Further examination into this phenomenon would be particularly pertinent in identifying whether Canada is losing highly qualified immigrants due to the frustration felt from not obtaining employment in their intended occupations.

Lastly, future research into the possibility of discriminatory hiring practices and other discriminatory procedures is needed, particularly with respect to high-status occupations. Findings from this research project indicate that visible minority immigrants in particular may be at a disadvantage due to discrimination in the Canadian labour market. Immigrants from some non-traditional source regions are also at a disadvantage when obtaining a job match. While a general assertion of discrimination is suggested by these findings, further research is needed to determine the source of this discrimination. Examination into whether these groups of immigrants are discriminated against due to their physical appearance or due to assumptions about the inferiority of their credentials (based on their region of origin) would be insightful. Thus, differentiation between "individual-level" discrimination in the hiring process and "institutional-level" discrimination is also needed. To address the possibility of discriminatory hiring practices, research into employer attitudes may be beneficial. Because the results from the SES variable suggest that immigrants who seek high-status occupations encounter greater difficulty in obtaining appropriate employment than others, research into discriminatory practices may be particularly interesting to compare across different types of occupations or industries.

Final Comments on the Study of the Employment Success of Recent Immigrants to Canada

This project addresses several research questions regarding different aspects of employment success for recent immigrants to Canada. The findings provide some new insight into immigrants' economic integration in Canada. The data indicate that various ascribed, demographic, human capital, and occupational characteristics are significant predictors of the likelihood of an immigrant obtaining a job match, the rate at which an immigrant will obtain a job match, and the occupational prestige scores and wages of immigrants' jobs in Canada. Additional insight into the experience of immigrants pursuing employment in a regulated profession is provided in the case study of engineers. The process of employment success is the primary focus of this project, accounting for the experience of recent immigrants over their first two years in Canada. The data provided by the Longitudinal Survey of Immigrants to Canada (LSIC) were particularly suitable to this project as they are specific to the

immigrant population and supply information about all jobs an immigrant has held since his or her arrival in Canada.

This research contributes new information about the occupational attainment of recent immigrants to Canada by examining different dimensions of immigrant employment success. Previous research predominantly concentrates on immigrants' earnings. While some literature examines whether immigrants obtain job matches, these studies tend to focus on descriptive data or broad occupational classifications. My project provides empirical evidence regarding the likelihood of a job match at more specific levels of occupation. This is of more relevance to immigrants themselves, as it indicates their odds of obtaining employment that is more closely related to their intended occupations. In addition, this research contributes to the existing literature by providing information about the rate at which immigrants with certain characteristics obtain job matches. By accounting for the element of time, findings from the event history analyses contribute new and useful findings regarding the process of economic integration for recent immigrants to Canada. Finally, results from the occupational prestige and wage models provide information regarding different aspects of immigrant employment success, including immigrants' mobility between jobs in Canada. Findings from these models illustrate the differences between these two concepts and signify that research that focuses solely on immigrants' earnings do not tell the complete story of their experiences within the Canadian labour market.

Findings obtained from these analyses indicate that the employment success of immigrants in Canada cannot be measured by one concept or be explained by one over-arching theory. While human capital theory can explain some of the variations in employment success among the immigrant population, evidence also indicates that the discrimination thesis and the theory of social closure are useful in providing a wider and more comprehensive understanding of the employment issues that immigrants encounter in Canada. In terms of the generation of theory, results from the event history analyses suggest that the rate at which immigrants obtain job matches slows over time, potentially due to the effects of holding survival jobs that do not contribute to the accumulation of human capital that

is relevant to their intended occupations. However, because a relatively short time period (two years) has been studied, the rate of obtaining job matches may increase with the longer amount of time immigrants have lived in Canada. This is particularly a possibility for those who were in the process of obtaining credential assessment and/or certification during the observed time period of the survey.

Results from the statistical analyses also provide some methodological insights. Of primary interest is the need for finer measurements of occupations when identifying the success rate of immigrants in obtaining appropriate employment. When more specific occupational classifications are used, the reality of obtaining a job match for this population is not as optimistic as is reported in literature that uses broader classifications (e.g. Grondin, 2007; Tran and Chui, 2003a, 2003b). In addition, the use of longitudinal data that track immigrants' employment since immigration provides a better understanding of the process of obtaining a job match and changes that immigrants experience in their occupational "outcomes" between jobs.

Results from these analyses indicate several concerns about the immigrant population, immigration policies, and macro-level costs to Canada's economy. First, the low proportion of immigrants who are able to obtain employment in their intended occupations at the unit group level suggests that many immigrants experience status inconsistency within their first two years in Canada. Issues relating to status inconsistency can result in emotional or mental anguish among immigrants or in resentment toward their new country. These findings also suggest that some objectives of Canada's immigration policy are not being reached. Specifically, while immigrants who arrive as "skilled workers" are vetted based primarily on their education or work experience, the majority of these workers are not obtaining employment that allows them to utilize these qualifications. Therefore, while Canada has a large population of immigrants who hold a substantial amount of human capital, only a small percentage obtain employment that allows them to utilize their education and expertise to contribute to Canadian society. While this is detrimental to immigrants themselves it also presents a loss to Canada's economy more generally. The under-utilization of immigrants' human capital

therefore has far-reaching implications as it negatively affects immigrants, the economy, and Canadian society in general.

The employment success of immigrants in Canada is a complex issue to examine. This complexity stems from both the heterogeneity of experiences within the immigrant population itself, as well as a multi-faceted understanding of what constitutes "employment success". While traditional notions of employment success (e.g. income) provide some understanding of what represents this type of attainment, the point of view of immigrants should also be considered. Obtaining an income that is equivalent to that of the average Canadian-born worker may not be the measure by which immigrants consider themselves successful.

The underemployment of immigrants can be detrimental to these individuals in many respects. Problems at the individual level can manifest at the societal level, creating strained relations between the immigrant and Canadian-born populations, as well a potential loss of human capital to the Canadian economy. Thus, although the economic integration of immigrants in Canadian society is not a new concern, the implications of ignoring the obstacles that immigrants face in the labour market are persistent and far-reaching. Findings from this study provide a more comprehensive understanding of the employment problems experienced by recent immigrants to Canada. Such insight into this social problem is useful to the immigrant population, policymakers, and future researchers alike.

APPENDIX A

DEFINITIONS OF VARIABLES

Variable	Definition/Code	Models
Sex	Males coded "1" Females coded "0"	All Models
Age	Continuous between ages 25-64	All Models
Visible Minority Status	Visible Minorities coded "1" Non-Visible Minorities coded "0"	All Models
Census Metropolitan Area (CMA)	Lives in Major CMA (Montreal,Toronto,Vancouver) coded "1" Lives in other area coded "0"	All Models
Region of Origin	Africa coded as "1", all others coded "0" Asia coded as "1", all others coded "0" Caribbean or Guyana coded "1", all others coded "0" Europe (Western, Eastern, Northern, and Southern Europe, and the United Kingdom) coded "1", all others coded "0" Middle East coded as "1", all others coded "0" North America coded "1", all others "0" (used as reference category) Oceania and Australia coded "1", all others coded "0" South and Central America coded "1", all others coded "0"	Models 1-12
Region of Origin	Asia coded "1", all others coded "0" Europe coded "1", all others coded "0" (used as reference category) Other Regions (Africa, Caribbean or Guyana, Middle East, North America, Oceania and Australia, South or Central America) coded "1", other regions coded "0"	Models 13-15
Immigrant Admission Class	Business Class coded "1", other classes coded "0" Family Class coded "1", other classes coded "0" Provincial Nominees coded "1", other classes coded "0" Skilled Worker Class coded "1", other classes coded "0" (used as reference category) Refugee or Other (includes government-sponsored, privately sponsored, and other refugees or immigrants abroad) coded "1", other classes coded "0" **Note:** Two of the original categories provided in the Longitudinal Survey of Immigrants to Canada regarding admission class (i.e. "Refugee" and "Other") were collapsed together due to small counts, particularly in the "Other" category.	Models 1-12
Immigrant Admission Class	Skilled Worker Class coded "1", all other classes coded "0" **Note:** Within the engineer sample, the vast majority (98%) of the sample immigrated under the Skilled Worker class	Models 13-15
Highest Level of Education Obtained Outside	High School Diploma or Lower (no formal education, some elementary or elementary complete, some high school, or a high school diploma) coded "1", other levels coded "0"	Models 1-12

Canada	Some Trade School, College or University (some trade school, college, or university education, but did not graduate) coded "1", other levels coded "0" Trade School or College Graduate (trade school/apprenticeship or college program completed) coded "1", other levels coded "0" Bachelor's Degree (Bachelor's degree completed) coded "1", other levels coded "0" (used as reference category) Master's Degree or Higher (includes those with a Master's degree, professional degree in dentistry, veterinary, optometry, law or theology, or Doctorate degree) coded "1", other levels coded "0"	
Highest Level of Education Obtained Outside Canada	Bachelor's Degree completed coded "1", other levels coded "0" (used as reference category) Master's or Professional Degree (includes individuals who have completed a Master's degree, a degree in dentistry, veterinary, optometry, law, or theology) coded "1", other levels coded "0" Doctorate Degree completed (individuals whose highest level of education is something other than a Bachelor's, Master's, professional, or Doctorate degree) coded "1", other levels of education coded "0"	Models 13-15
English and French Language Proficiency Scores	These scores were calculated by Statistics Canada after data on language proficiency were collected. The original data set contained scores ranging from 0 to 1. New variables were created based on the original scores by multiplying them by 100 to create more interpretable scores. The following paragraph is Statistics Canada's (2006) explanation of the calculation of the original scores: The English and French linguistic ability scores are measures that were developed a posteriori from several LSIC questions. The goal of these scores is to measure the respondent's ability to function in each of the two official languages. These measures take into account the respondent's reported ability to speak, read and write in these two languages, the ability to do certain daily life activities in these languages, as well as the use of these languages at work and while studying to obtain their highest education level. Each score takes on values between 0 and 1, the higher values indicating a greater ability. **Note:** Refer to Appendix B for the detailed methodology written by Levesque and Grondin as provided in Statistics Canada's (2007) LSIC re-release documentation.	All Models
Previous Work Experience in	Individuals whose past occupation in country of origin was the same as his/her intended occupation coded "1", others coded	All Models

Intended Occupation	"0"	
Socio-Economic Status Scores (SES)	The socioeconomic status (SES) for immigrants' intended occupations were calculated in a similar fashion as Blishen (1967) scores. Using data from a Statistics Canada public use file, the proportion of individuals with only elementary school education and the proportion of individuals with university education were calculated for each occupation. The proportion of university educated individuals was then subtracted from the proportion with elementary school only, creating an "education" score for each occupation. The log income of each occupation was also calculated. Following these steps, standardized scores (Z-scores) were then calculated for the education and log income scores using the following formula: $Z = (Y_i - \tilde{Y}) / \sigma_y$ *where* $\tilde{Y}$ *= the mean of Y and* σ_y *is the standard deviation of Y.* The SES scores are then created by adding together the Z-scores for education and income. The mean of the SES scores is zero. Because the original data set was derived from SOC (1991) titles, some of the NOC (2001) jobs for "intended occupation" do not match exactly with SOC titles. The SES scores used for these NOC occupations are based on scores for jobs most closely related to SOC occupation titles. Most of the NOC occupations in question are identified within the SOC, but are lumped together with closely related occupations. For example, in the SOC, Engineering Managers and Architecture and Science Managers are put together in the same unit group. These two groups of managers have been separated in the NOC. The SES scores for these two groups have been assigned the same number due to the fact that the SOC was the basis for these calculations.	Models 1-8
Occupational Aptitudes based on 2001 NOC	The aptitude variables were created with respect to the intended occupation that an immigrant has reported prior to immigration. Every case was initially coded with a number between 1 and 5, representing the abilities required for each individual's intended occupation. The scores from 1 through 5 are based on the normal curve of the Canadian work force and are described below. In order to treat these aptitudes as continuous variables, midpoints for each of the five points on the normal curve were determined. Therefore, the aptitude variables used are based on these midpoint values. The definitions of the five values on the normal curve are represented below in addition to their midpoints. 1=The highest 10% of the working population (midpoint = 5.5) 2=The upper third of the working population, exclusive of the	Models 1-8

[17] Definitions taken from HRSDC website http://www23.hrdc-drhc.gc.ca/ch/e/docs/glossary_aptitudes

	highest 10% (midpoint = 21.5) 3=The middle third of the working population (midpoint = 49) 4=The lowest third of the working population, exclusive of the lowest 10% (midpoint = 77.5) 5=The lowest 10% of the working population (midpoint = 95) The definitions[17] of each of the nine aptitude variables are provided below. 1. General Learning Ability: Ability to "catch on" or understand instructions and underlying principles; to reason and make judgments. 2. Verbal Ability: Ability to understand the meaning of words and the ideas associated with them, and to use them effectively; to comprehend language, to understand relationships between words and to understand the meaning of whole sentences and paragraphs; to present information or ideas clearly. 3. Numerical Ability: Ability to carry out arithmetical processes quickly and accurately. 4. Spatial Perception**:** Ability to think visually about geometric forms and comprehend the two-dimensional representation of three-dimensional objects; to recognize the relationships resulting from the movement of objects in space. May be used in such tasks as blueprint reading and in solving geometry problems. Frequently described as the ability to "visualize" objects of two or three dimensions. 5. Form Perception: Ability to perceive pertinent detail in objects and in pictorial and graphic material; to make visual comparisons and discriminations and to see slight differences in shapes and shadings of figures and widths and lengths of lines. 6. Clerical Perception: Ability to perceive pertinent detail in verbal or tabular material; to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetical computation. 7. Motor Co-ordination: Ability to co-ordinate eyes, hands and fingers rapidly and accurately when required to respond with precise movements. 8. Finger Dexterity: Ability to move the fingers and manipulate small objects with the fingers rapidly and/or accurately. 9. Manual Dexterity: Ability to move the hands easily and skillfully; to work with the hands in placing and turning motions.	
Data/Information, People, and Things (DPT) Complexity Scores	The DPT scores used in this study are derived from the Dictionary of Occupational Titles (1991) DPT scores. These scores were used instead of those provided in the NOC (2001) due to the fact that the DOT scores are assigned based on a scale of complexity whereas the NOC scores are not representative of a scale of any sort. However, the DPT tasks	Models 1-8

	associated with the occupations in both the NOC and the DOT were found to be the same for the vast majority of occupations studied. The following information indicates the scales for the DPT scores within the 1991 Dictionary of Occupational Titles. The original scale was converted in an effort to ease interpretation as the highest score on the original scales was represented by "0". The DOT values for the DPT scores were reversed so that the task associated with the lowest complexity of working with data, people, or things is represented by the score of "0". Therefore, with the transformed scale, the higher the DPT score, the higher the level of complexity associated with working with data, people, or things. The following provides more detailed information on the tasks associated with the DPT scores: 1. Complexity of Working with Data: Range from low (0) to high (6) level of complexity: 0 = Comparing data, 1= Copying data, 2= Computing data, 3= Compiling data, 4= Analyzing data, 5= Coordinating data, 6= Synthesizing data 2. Complexity of Working with People: Range from low (0) to high (8): 0=Taking instructions, 1= Serving, 2= Speaking-Signaling (i.e. talking with or signaling people to convey or exchange information), 3=Persuading (e.g. sales), 4=Diverting-Entertaining, 5= Supervising, 6= Instructing-Teaching, 7=Negotiating, 8= Mentoring 3. Complexity of Working with Things: Range from low (0) to high (7):0=Handling, 1=Feeding-Offbearing (i.e. inserting, placing materials in or removing from machines/equipment that is automated), 2= Tending (i.e. start/stop and observing the functioning of machines and equipment), 3= Manipulating, 4= Driving-Operating, 5= Operating-Controlling, 6= Precision Working, 7= Setting up (i.e. preparing machines for operation by planning order of successive machines, set controls, verify accuracy, etc.)	
Number of Jobs Held Since Immigrating	The total number of jobs an immigrant has held since immigrating represents a continuous-level variable. Due to the fact that the sample used only includes those who have been active in the Canadian labour force, the minimum number of jobs that an individual in this sample has held is one. The maximum number of jobs possible is nine as this is the maximum number of jobs that the LSIC reports.	All Models

APPENDIX B

DETAILED METHODOLOGY FOR LANGUAGE PROFICIENCY SCORES FROM STATISTICS CANADA

Authors: Amélie Lévesque and Chantal Grondin

Methodology used to create the scores

A score was created for each language (English and French) and for each wave using the available data at the time of the study (Waves 1 and 2). Here is a summary of the steps.

Step 1: Multiple Correspondence Analysis (MCA) on potential variables

MCA allowed us to identify, among all examined variables, which ones were related to high1 levels of speaking, reading and writing each language, and which categories of these variables were associated with these high levels.

Step 2: Standardization of the components of the score (creation of binary variables)

Based upon the results of the MCA, the categories of each potential variable were classified into one of the two following groups: "Functions well in this language" or "Does not function well enough in this language". For each potential variable, a binary variable was created taking a value of 1 if the category was associated with the fact of functioning well in this language, 0 otherwise. Hence each binary variable could potentially become a component of the score. For example, the variable indicating in which language the highest level of education was obtained has 8 categories ("English only", French only", "English and French", "English and other", "French and other", "English, French and other", "Other", "don't know or not applicable"). Based upon the MCA results, the binary variable for the English score takes the value of 1 if the respondent has reported "English only", "English and French", "English and other", or "English, French and other", because these are the categories that are associated with high levels of speaking, reading and writing English. For all other categories, the binary variable takes on a value of 0.

Step 3: Weighting and aggregation of the components (computing the score)

There are different schools of thought when it comes to the need for, and the way of, weighting the different components of a score. In our case, we opted for the equal weighting of the components since, in our opinion, all variables are of equal "value" to the score. We thus assigned the same weight 1. The self-assessed language variables have 5 levels: does not speak/read/write the language, speaks/reads/writes it poorly, fairly well, well or very well. High levels considered here correspond to speaking/reading/writing the language well or very well (a weight of 1) to all components of the score. The score of an immigrant for a given language and wave was then computed by summing all of the binary variables created at the previous step, and by rescaling the values so that they fall between 0 and 1.

Step 4: Reliability measure for the components of the score

The most commonly used estimator of the internal consistency of the components of a model (in this case, a score), is Cronbach's alpha coefficient. High values of this coefficient indicate that the components are able to properly measure the latent phenomenon. Literature suggests a value of 0.7 as an acceptable threshold for this coefficient. Furthermore, it is suggested to verify if the reliability coefficient increases after having suppressed one of the components. If this is the case, it indicates that the elimination of this component makes the score even more reliable. The resulting coefficients initially ranged from 0.57 for the English score at Wave 2 to 0.86 for the French score at Wave 2. However we eliminated some of the components (since their suppression increased the coefficient) and hence obtained even higher coefficients.

Step 5: Meeting with a Statistics Canada language expert

We met with a Statistics Canada language variable expert to discuss in greater detail the use of the different components of the score. We agreed that it is preferable NOT to include in the score those variables which are predictors of the ability in a given language (variables associated with a level of linguistic ability), but instead, to include variables that are language attributes (variables which measure more directly the linguistic ability), in order to obtain a real measure of the immigrant's

ability in the language. To this end, we eliminated some variables that were used at first (such as age group and immigration class). A much more reliable score was thus created, with Cronbach's coefficients now ranging from 0.81 for the Wave 2 English score to 0.93 for the Wave 2 French score.

Step 6: Principal Component Analysis (PCA) PCA consists of trying to identify one or more factors that explain in large part the variability of a set of characteristics, and which characteristics contribute to each of these factors. Here, we want to see which variables explain linguistic ability. The variables which mainly contribute to the same factor could be used to compute a score. Hence we used PCA to see if the components of the most recent score contribute in fact to the same factor (i.e. linguistic ability). We concluded from PCA that all components of the French score (Waves 1 and 2) measured the same factor, while in English, we had to eliminate one of the components. Moreover, the English score for Wave 1 was computed based on the same variables as the Wave 2 score except for one. We thus decided to use, for the score in each language, the same components at both waves so that comparisons in time are more consistent. We ended up with an improved score for English.

Step 7: Last improvements and computation of the final scores

After examining and comparing the Wave 1 and 2 scores for each language, we decided that it would be interesting to discriminate even more among immigrants according to their answers to the 5 ability questions from the LSIC questionnaire. We therefore modified the latest versions of the scores for each language and each wave by refining the level of detail of one of the components. The components of these new scores are now the same for both waves, and the categories assigned to "functions well in this language" (1) and "does not function well enough in this language" (0) are the same from one wave to the next for a given language. These variables measure the immigrant's ability, in each language, to give his/her address, to describe what he/she was doing before immigrating, to understand a phone message, to tell a doctor what the problem is, and to ask someone to rearrange a meeting.

Step 8: Validation of the score

Different verifications were done to see if the scores seemed logical, pertinent and consistent. These were done for all intermediate versions of the computed scores and the results of each version were

compared. For the purpose of validation, a "pure" score was also computed using only the immigrant's three self-assessed variables (ability to speak, to read and to write the language) to see how it compared to the other scores. We observed that the scores that were computed first were the least effective. But the different modifications made to the scores over time were beneficial since with each new score, we saw improvements in the results. For example, the reliability of the latest scores computed was clearly superior to that of the previously computed scores, Cronbach's alpha coefficients now ranging from 0.84 for the Wave 2 English score to 0.95 for the Wave 2 French score.

Step 9: Validation of the scores using two sub-samples

To ensure that the reliability and consistency of the scores was not only due to the sample composition, we verified that different samples would have produced equally good results. We hence randomly divided the sample of respondents into two sub-samples. For each sub-sample, PCA was redone; the number of factors and the variables related to each factor were compared. The results for each sub-sample were similar, as well as similar to those of the complete sample.

Step 10: Validation of the scores using an external source

In order to see if the LSIC scores would produce results that are in line with those of another source, we used Census data on self-assessed speaking ability in English and French for immigrants who landed in 2000 and 2001. For the LSIC, a threshold was set for the English and French scores, above which we considered that the immigrants could speak the language. This threshold was computed as the *xth* percentile of the score distribution, where *x* corresponds to the estimated percentage of immigrants whose speaking level at Wave 1 was "cannot speak" or "speaks poorly". For example, if 20% of immigrants reported not speaking or poorly speaking English at Wave 1, then we took the 20^{th} percentile of the English score distribution as the threshold value separating immigrants who could not speak from those who could. We computed the threshold for French in the same way. We could then classify immigrants according to whether they could speak English only, French only, English and French, or neither language. Next, we divided immigrants according to their mother tongue, and compared the distribution of immigrants who spoke English only, French only, English and French or

none of these languages to the Census distribution by mother tongue. We did the same by dividing immigrants according to their country of birth. This comparison clearly showed that thedistributions from the two latest scores were much closer to those of the Census, compared to all previous versions of the scores.

Conclusion: choice of the final score

The final linguistic ability score for the LSIC is, for several reasons, the last one computed:

- It is the most reliable;
- Because it is computed using the same components from one wave to the next, the comparability in time for a language is possible (we can really measure the improvement or deterioration of the immigrant's ability in each language over time);
- It generally had the best results for the different validation steps;
- It produces estimates that are consistent with those of the Census.

APPENDIX C

LIST OF NOC (2001) SKILL TYPES WITH CODES

0 = Management occupations

1 = Business, finance and administrative occupations

2 = Natural and applied sciences and related occupations

3 = Health occupations

4 = Occupations in social science, education, government service and religion

5 = Occupations in art, culture, recreation and sport

6 = Sales and service occupations

7 = Trades, transport and equipment operators and related occupations

8 = Occupations unique to primary industry

9 = Occupations unique to processing, manufacturing and utilities

APPENDIX D

LIST OF NOC (2001) SKILL LEVELS WITH CODES

1 = Occupations requiring a University Degree

2 = Occupations requiring Post-Secondary Education at a Community College, Institute of Technology, or CEGEP; may also include occupations requiring 2-5 years of apprenticeship or more than 2 years of on-the-job training

3 = Occupations requiring 1-4 years of Secondary School or up to 2 years of on-the-job training

4 = Occupations requiring only a short work demonstration or a small amount of on-the-job training.

Note: Managerial occupations are not associated with any specific skill level in the NOC

APPENDIX E

DESCRIPTIVE DATA FOR PREDICTOR VARIABLES

Descriptive Characteristics for Categorical Variables

CATEGORICAL VARIABLES OF INTEREST	***Frequency***	***Percentage***
Sex		
Female	786	26.3
Male	2,199	73.7
Total (n)	**2,985**	**100.0**
Visible Minority Status		
No, not a visible minority	789	26.5
Yes, a visible minority	2,191	73.5
Total (n)	**2,980**	**100.0**
Immigrant Admission Category		
Family Class	152	5.1
Provincial Nominee Class	35	1.2
Skilled Worker Class	2,716	91.0
Business Immigrant Class	54	1.8
Refugee/Other Immigrant Class	28	0.9
Total (n)	**2,983**	**100.0**
Region of Birth		
North America	43	1.4
Europe	598	20.1
Asia	1,751	58.7
Middle East	76	2.6
Africa	302	10.1
Caribbean and Guyana	101	3.4
South and Central America	95	3.2
Oceania and Australia	15	0.5
Total (n)	**2,981**	**100.0**
Lives in Major CMA, Wave 1		
Yes	2,234	74.8
No	751	25.2
Total (n)	**2,985**	**100.0**
Lives in Major CMA, Wave 2		
Yes	2,188	73.3
No	797	26.7
Total (n)	**2,985**	**100.0**

Total (n)Level of Education		
High School Completed or Less	147	4.9
Some Trade School, College, or University	136	4.6
Trade School, Apprenticeship or College Completed	289	9.7
Bachelor's Degree	1,502	50.4
Master's, Professional, or Doctoral Degree	908	30.4
Total (n)	**2,982**	**100.0**
Previous Work Experience		
Yes	1,007	34.2
No	1,937	65.8
Total (n)	**2,944**	**100.0**

Descriptive Characteristics for Continuous Variables

Variable	**Mean**	**Standard Deviation**	**Total: Valid Cases**
Age, Wave 1	35.31	6.73	2,985
Age, Wave 2	36.97	6.71	2,985
English Language Proficiency, Wave 1	74.00	22.75	2,985
English Language Proficiency, Wave 2	75.90	21.95	2,985
French Language Proficiency, Wave 1	16.44	30.77	2,985
French Language Proficiency, Wave 2	17.53	32.32	2,985
General Learning Ability Aptitude	80.53	17.48	2,985
Numerical Ability Aptitude	72.86	16.41	2,985
Verbal Ability Aptitude	74.05	23.80	2,985
Spatial Perception Aptitude	59.18	25.56	2,985
Form Perception Aptitude	52.90	21.47	2,985
Clerical Perception Aptitude	49.64	25.66	2,985
Motor Coordination Aptitude	30.69	14.72	2,985
Finger Dexterity Aptitude	31.25	16.29	2,985
Manual Dexterity Aptitude	31.15	15.00	2,985
Working with Data Complexity Score	4.83	1.20	2,985
Working with People Complexity Score	2.45	1.64	2,985
Working with Things Complexity Score	3.64	2.76	2,985
Socio-Economic Status Score	1.68	1.87	2,985
Number of Jobs Held Since Immigrating	1.81	1.02	2,975

APPENDIX F

LIST OF OCCUPATIONS INCLUDED IN ENGINEER SAMPLE

NOC Unit Group Code	OCCUPATIONAL TITLE
2111	Physicists and Astronomers (e.g. Medical Engineering Biophysicist)
2122	Forestry Professionals (e.g. Forestry Engineer)
2131	Civil Engineer
2132	Mechanical Engineer
2133	Electrical and Electronics Engineer
2134	Chemical Engineer
2141	Industrial and Manufacturing Engineers
2142	Metallurgical and Materials Engineers
2143	Mining Engineers
2144	Geological Engineers
2145	Petroleum Engineers
2146	Aerospace Engineers
2147	Computer Engineers
2148	Other Professional Engineers not elsewhere classified
2173	Software Engineers and Designers

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