

*******DRAFT*******

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**DETERMINANTS AND EFFECTS OF POST-MIGRATION
EDUCATION AMONG NEW IMMIGRANTS IN CANADA**

Rupa Banerjee
Ted Rogers School of Business Management
Ryerson University

and

Anil Verma
Centre for Industrial Relations & Human Resources
and
Rotman School of Management
University of Toronto

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1. Introduction

New immigrants to Canada are among the most educated immigrants to date. The proportion of immigrants arriving with a university degree, for example, increased from 22 percent in the 1970s to 25 percent in the 1980s to 41 percent in the 1990s (Statistics Canada 2003a). Despite their high levels of education, many newly arrived immigrants in Canada are unable to find work in fields related to their education and previous experience. Even when they find jobs within their fields, new immigrants earn considerably less than their native-born counterparts (see Hum and Simpson 2004 for a review of this literature).

Several factors have been found to contribute to the employment disadvantage of new immigrants. First, immigrants' educational qualifications and work experience appear to be discounted in the Canadian labour market (Basran and Zong 1998; Li 2001; Reitz 2001; Green and Worswick 2002; Aydemir and Skuterud 2005). This discounting may occur because Canadian employers are unable to assess the quality or relevance of foreign qualifications, or it may be evidence of ethno-racial discrimination (Reitz 2007).

Second, the educational attainment of native-born Canadians has been rising rapidly, particularly among new labour market entrants in the major urban centres (Reitz 2003). So, although new immigrants are more educated than the Canadian-born population as a whole (about 22 percent of whom have a university degree, according to the 2001 Census), they may not be more educated than native-born Torontonians in their twenties (Reitz 2007). Given that immigrants settle predominantly in the major urban centres of Toronto, Vancouver and Montreal (Grant and Sweetman 2004), their labour market competitors tend to be these young, highly educated native-born workers.

One important way for new immigrants to overcome the discounting of their qualifications and compete with young, urban workers is to further invest in their skills after arriving in Canada (Chiswick 1978; Chiswick and Miller 1985 and 1993; Friedberg 2000). Participating in formal educational courses may be a good way for immigrants to augment the skills and abilities they bring from their home country and gain Canadian-specific knowledge. In addition, Canadian schooling could introduce new immigrants to important social networks, establish credentials for their existing skills, and improve their level of confidence and understanding of Canadian society.

Although formal education may be one of the best avenues for new immigrants to succeed in the Canadian labour market, not every new immigrant enrolls in educational courses or programs. Several factors may influence whether an individual pursues further education upon arrival in Canada. First, we know from previous studies of adult education that prior education affects future educational decisions; in the general population the two are usually found to be positively related (see Zhang and Palameta 2006). Second, we know that financial constraints may limit one's ability to invest in formal education (Corman 1983).

While prior education and financial capital are known to affect educational decisions among adults in the general population, their effects may be different for newly arrived immigrants. Furthermore, there may be some factors that specifically impact the post-migration educational decisions of new immigrants, which do not apply to the general population. For instance, the transferability and devaluation of pre-migration human capital may influence new immigrants' decision to invest in further education. Official language ability likely affects individuals' educational decisions and is

particularly relevant to immigrants. Lastly, non-European immigrants are known to face greater employment disadvantage in Canada than their European counterparts (see Aydemir and Skuterud 2005), which could lead to ethnic differences in immigrants' post-migration educational decisions.

This study utilizes a rich new source of data on immigrants' integration: the Longitudinal Survey of Immigrants to Canada (LSIC). This national survey contains detailed information on the post-migration activities of new immigrants and has a longitudinal panel design. Using the LSIC dataset, the present study first explores the factors influencing the post-migration educational decisions of newly arrived adult immigrants. Specifically, the study examines the effect of human capital, financial capital and other immigrant-specific characteristics on post-migration educational investment. Second, this study examines the effect of post-migration education on new immigrants' labour market integration, as measured by earnings and occupational status. Since the LSIC dataset surveyed recently arrived immigrants only, the present study is a within-immigrant examination of post-migration education.

Although numerous previous studies have investigated educational decisions and their labour market effects in the general population, few have examined this issue specifically for newly arrived adult immigrants. The special status and unique problems faced by new immigrants may influence their educational decisions, as well as the labour market effects of those decisions. Therefore a separate analysis of the issue is warranted for this group.

2. Previous Literature

Adult learners may enroll in higher education to stay current in an existing career, start a new career, or advance in their careers (Aslanian 2001). Several previous studies have examined the factors that influence the educational decisions of adults (see Haggard-Guénette 1991; Gower 1997; Jenkins et al. 2003; Zhang and Palameta 2006). From these studies we know that young, highly educated, single adults are more likely to invest in further formal education than those who are older, less educated or married. Zhang and Palameta (2006) note that: “Adults who go back to school are largely already in favourable economic circumstances, and many people who appear to have the greatest need to improve their economic prospects are not participating in adult education”.

A substantial body of literature has also investigated the relationship between educational investment and earnings in the general population (see Gunderson and Krashinsky 2004 and Card 2001 for reviews of this literature). Estimates in Canada indicate an earnings benefit of about 8-10 percent for every additional year of education (Riddell 2004; Lemieux 2001; Lemieux and Card 2001)¹. Going back to school after a period of employment (i.e. adult education) has also been examined in several studies. Some have found the earnings returns of adult education to be similar to those of regular education (Light 1995; Leigh and Gill 1997), while others have found the benefits to be significant only for those who receive a post-secondary certificate (Palameta and Zhang 2006). Still other studies, mostly out of Europe, have found little or no earnings benefits from adult education (Ekström 2003; Albrecht, van den Berg and Vroman 2004).

¹ One important methodological issue to consider when examining the labour market effect of education is the bias that may arise from unobserved individual heterogeneity or ‘ability bias’ (Griliches 1977). Several approaches have been taken to correct for ability bias, including natural experiments and instrumental variable estimation (see Angrist and Krueger 1991; Kane and Rouse 1993; Angrist, Imbens and Rubin 1996; Card 1999; Lemieux and Card 2001).

While the topic of further education has been well studied for the general population, the same attention has not been paid to its role among new immigrants, whose unique situation requires more specialized attention. Only a handful of studies have examined post-migration investment in education among adult immigrants in various countries (Borjas 1982; Chiswick and Miller 1994; Hashmi-Khan 1997; Friedberg 2000; Bratsberg and Ragan 2002; Hum and Simpson 2003; Cobb-Clark, Connelly and Worswick 2005; Tubergen and Werfhorst 2006).

From these studies, age at migration has been found to be negatively, but nonlinearly, related to post-migration investment in education (Chiswick and Miller 1994; Hashmi-Khan 1997; Hum and Simpson 2003; Tubergen and Werfhorst 2006). Time in the host country (YSM) has been found to positively affect education, with the most investment made in the early years after migration (Chiswick and Miller 1994; Hashmi-Khan 1997; Tubergen and Werfhorst 2006).

While some studies found that non-English speaking immigrants invested more in post-migration education (Hashmi-Khan 1997; Cobb-Clark et al. 2005), others did not find an effect of language knowledge (Chiswick and Miller 1994; Hum and Simpson 2003). Pre-migration occupational status was found to be positively related to post-migration educational investment (Chiswick and Miller 1994) and financial constraints were found to negatively affect immigrants' participation in post-migration education (Hashmi-Khan 1997; Hum and Simpson 2003).

Immigration category is another factor that has been found to affect investment in post-migration education. Borjas (1982) and Hashmi-Khan (1997) found refugee groups to be more likely to invest in education than others, while Chiswick and Miller (1994)

found refugees to be slightly less likely to invest in education than economic or family class migrants. Not surprisingly, Tubergen and Werfhorst (2006) found in their Dutch study that immigrants entering through the 'educational' immigration category were more likely to participate in post-migration education than immigrants entering through other classes.

The relationship between pre- and post-migration education has been found to be somewhat inconsistent in these various studies. In their US-based studies, Borjas (1982) and Hashmi-Khan (1997) found a negative relationship between the number of years of education acquired abroad and the number of years of schooling in the US and concluded that pre- and post-migration education act as substitutes. The assumption was that foreign education lowers the benefit of post-migration education. On the other hand, Chiswick and Miller (1994) and Tubergen and Werfhorst (2006) found post-migration education to be positively related to pre-migration educational attainment, and concluded that the two act as complements rather than substitutes. Cobb-Clark et al. (2005) also found pre-migration educational level to be positively related to post-migration education, but only for 'traditional' families (in which the principle applicant is male and the spouse is female). For non-traditional families, however, they found little relationship between pre- and post-migration education.

Chiswick and Miller (1994) attributed this discrepancy in findings to a serious data limitation in the two US studies. Both Borjas (1982) and Hashmi-Khan (1997) calculated years of post-migration education indirectly by subtracting years of schooling at immigration from total years of schooling. Chiswick and Miller (1994) point out that random measurement error inherent in this procedure may impart a negative correlation

between pre- and post-migration schooling, which could contribute to a spurious negative relationship between the two.

The only known Canadian study to examine post-migration educational investment by immigrants was conducted by Hum and Simpson (2003). This study utilized the 1998 Adult Education and Training survey and focused only on work-related training investments. Furthermore, this study compared the training investments of immigrants to that of comparable native-born workers.

While immigrants' decision to participate in post-migration education has received some attention, fewer studies have specifically investigated the labour market effects of adult immigrants' investment in post-migration education. Using data from the 1970, 1980 and 1990 US Censuses of Population and the National Longitudinal Survey of Youth, Bratsberg and Ragan (2002) conducted one of the few known studies specifically on this topic. This study concluded that US immigrants who acquire education after arrival earn higher wages than other immigrants. Immigrants who invested in US schooling not only gained from their higher level of education, but also received greater returns to their foreign education. However, returns to post-migration education were found to vary by the economic development and language of the source country. Returns to education were higher for immigrants from developed, English-speaking countries.

Friedberg (2000) analyzed the 1972 and 1983 Israeli Censuses of Population and concluded that post-migration educational investment improved the returns to foreign education. Thus, acquiring further education upon arrival seems to confer a compound benefit to immigrants.

In summary, the theory and previous empirical evidence indicates that human capital, financial capital and various other characteristics affect new immigrants' decision to participate in post-migration education. Furthermore, participation in post-migration education improves immigrants' earnings, but this relationship appears to vary depending on a number of immigrant-specific factors.

3. Model

The first section of the present study examines the factors that influence new immigrants' participation in post-migration education in Canada. Specifically, this section investigates how human capital, financial capital and other characteristics affect new immigrants' participation in education upon arrival in Canada. Age, pre-migration education, acceptance of foreign work experience, official language ability, pre-migration occupational status and change of occupation are used to operationalize human capital. Financial capital is measured by the amount of funds brought at the time of immigration. Other characteristics explored in this study include ethnicity, gender and immigration category.

Human Capital

Cognitive ability has been found to diminish somewhat with age (see Deary and Der 2005), so post-migration education may be more difficult to achieve for older immigrants than younger immigrants. Also, younger migrants generally have lower opportunity cost and a longer Canadian career ahead of them and would derive greater benefits from obtaining Canadian education over their life course, so they may be more motivated to pursue post-migration education than their older counterparts. In the general population, age is known to be negatively related to adults' participation in

education (see Jenkins et al. 2003). Based on theory and previous evidence, younger immigrants are expected to be more likely to invest in Canadian education than their older counterparts.

Pre-migration education could act in two ways on immigrants' likelihood of engaging in further education. If pre- and post-migration education act as substitutes for one another as indicated by Borjas (1982) and Hashmi-Khan (1997), then there should be a negative relationship between the two, since post-migration education would confer greater benefits to less educated immigrants. On the other hand, if pre- and post-migration education act as complements as indicated by Chiswick and Miller (1994); Cobb-Clark et al. (2005); and Tubergen and Werfhorst (2006), then the two should be positively related, since higher educated immigrants would be expected to have greater intellectual abilities and motivation than their less educated counterparts, and thus post-migration education would involve less 'cost' for these immigrants. Furthermore, more educated individuals likely place higher value on formal education and so may be more motivated to go back to school. This is usually the finding among adults in the general population (see Zhang and Palameta 2006). Since the theory and previous evidence provide for opposite results, the relationship between pre- and post-migration education will be determined empirically in the present study.

Recent evidence suggests that pre-migration human capital, particularly foreign work experience, is greatly devalued in the Canadian labour market (Aydemir and Skuterud 2005). Immigrants whose pre-migration experience is not accepted in Canada are likely to face considerable difficulty finding relevant employment and may invest in further education in order to compensate for their disadvantage and signal their foreign

qualifications. Thus, in this study, the acceptance of foreign experience by Canadian employers or professional organizations is expected to decrease immigrants' likelihood of participating in Canadian education.

Knowledge of English or French could affect immigrants' participation in post-migration education either positively or negatively. On the one hand, immigrants without knowledge of English or French may benefit most from Canadian education and thus have greater incentive to invest in further education than immigrants with English or French knowledge. Thus, English or French language ability may be negatively related to post-migration education. On the other hand, immigrants without official language ability may have difficulty obtaining information about educational opportunities and find Canadian education to be exceedingly challenging. If this is the case, official language ability may be positively related to post-migration education. In this study, the relationship between official language (English or French) ability and post-migration education will be determined empirically since the theory and previous evidence allow for several contradictory relationships.

Immigrants working in professional or managerial occupations prior to migration may have greater incentive and motivation to improve their occupational status after arriving in Canada than immigrants from other occupations. So, professional or managerial immigrants may be more likely to engage in further Canadian education than their counterparts from other occupations. On the other hand, new arrivals from outside of the professional or managerial occupations (from clerical or sales occupations, for example) may face the greatest devaluation of their skills in Canada, because of the informal and ad hoc methods often used to assess job candidates in these occupations

(Reitz 2007). Such immigrants may have greater need to upgrade their qualifications and gain local knowledge, and therefore may be more likely to invest in post-migration education than professional or managerial immigrants. Due to the conflicting theoretical perspectives on this issue, the relationship between pre-migration occupation and post-migration education will be determined empirically in this study.

Although pre-migration occupation is important to an immigrant's cache of human capital, immigrants often change their occupations upon arrival in a new country (Chiswick, Lee and Miller 2003). This could occur because immigrants decide to use their immigration opportunity to shift careers, or it could occur because new immigrants are unable to find work within their own fields. In any case, changing careers upon immigration often involves formal retraining. Thus, immigrants who change occupations upon arrival in Canada are expected to be more likely to participate in post-migration education than those who remain in their pre-migration occupations.

Financial Capital

Participation in adult education usually tends to be constrained by financial costs. The time commitment of formal education may lead to lost wages, and the costs of tuition may limit some new immigrants' ability to participate in educational courses. So, financial capital at arrival is expected to increase immigrants' likelihood of engaging in post-migration education.

Other Characteristics

Ethnic differences are known to exist in new immigrants' labour market success. Numerous Canadian studies have found that immigrants from non-European backgrounds face greater difficulty than their European counterparts in employment (Baker and

Benjamin 1994; Bloom, Grenier and Gunderson 1995; Reitz 2001; Green and Worswick 2002; Li 2003; Aydemir and Skuterud 2005). These differences may arise because some source countries are viewed as being more similar to Canada in terms of language, educational system or economic system. Alternatively, they could be considered evidence of ethnic discrimination. Given the greater barriers to their labour market success, non-European (visible minority) immigrants are expected to be more likely to engage in post-migration education than immigrants from European source countries.

Previous studies have generally found that immigrant women face similar earnings disadvantages relative to their male counterparts as native-born women (e.g. Frenette and Morissette 2003). However, Beach and Worswick (1993) and Li (2001) have concluded that highly educated visible minority immigrant women face greater difficulty in the Canadian labour market than any other subgroup. Given that educated immigrant women may face a double negative effect in the Canadian labour market, this group may be more likely than their male counterparts to participate in post-migration education. On the other hand, the gendered division of household labour (see Breen and Cooke 2004) may prevent some immigrant women from investing in further education. The effect of gender on post-migration education will therefore be determined empirically in this paper.

Since immigrants entering through the skilled worker class are expected to bring more transferable skills than those entering through the family, business or refugee categories (Citizenship and Immigration Canada 1998), they may have less need to engage in post-migration education than other immigrants. On the other side of the spectrum, refugees may possess little transferable human capital and may have little or no

option of returning to their home country. Therefore, refugees may have the greatest need for re-training and be more likely than others to invest in Canadian education. Alternatively, if skilled immigrants entering Canada with the expectation of improving their career prospects find that they are unable to secure employment in their field, they may be more motivated to invest in Canadian education than other immigrants, who have lower expectations of labour market success. Also, skilled immigrants may possess greater innate ability than those entering through other categories, and therefore find Canadian education more accessible and achievable. If this is the case, skilled immigrants may be more likely to invest in post-migration education than refugees and family class immigrants. Since the relationship between immigration status and post-migration education is uncertain, it will be determined empirically.

Does Post-Migration Education Improve Labour Market Integration?

The second section of this analysis examines whether investing in post-migration education actually improves immigrants' labour market integration. Given that the discounting of foreign human capital is known to be a serious disadvantage for new immigrants, we expect a positive relationship between post-migration education and labour market integration, as measured by earnings and occupational status.

However, Canadian education may benefit some immigrants more than others. So, this study examines the differential earnings effects of post-migration education by ethnicity, pre-migration education, change of occupation and acceptance of foreign work experience. Since non-European (visible minority) immigrants' face greater devaluing of

their foreign human capital than European immigrants, Canadian education may be more important for their integration. So, post-migration education is expected to yield greater benefits for visible minority immigrants than white immigrants.

Individuals with high levels of education at the time of immigration should have better employment chances in Canada than their less-educated counterparts. Therefore, post-migration education may be more important to the integration of less educated immigrants. However, Canadian educational credentials should serve to signal the skills of already educated immigrants to Canadian employers. So, participating in post-migration education may improve the returns to foreign education, particularly for highly educated immigrants.

Immigrants who change their occupation upon arrival in Canada likely experience lower initial earnings and occupational status than those who remain in their pre-migration occupation, since these individuals are essentially ‘starting their careers over’ at entry-level positions. Since they are building upon existing human capital, immigrants who remain in their pre-migration occupation and engage in further education are expected to experience greater benefits than those who change their occupations.

It is well known that new immigrants often experience devaluing of their pre-migration qualifications and experience. Immigrants whose pre-migration experience is accepted in Canada have much better chances of obtaining relevant employment and improving their economic position by gaining Canadian work experience. On the other hand, immigrants whose pre-migration experience is not accepted may rely on formal education to overcome their disadvantage. So, the acceptance of foreign experience by

Canadian employers or professional organizations is expected to lower the benefits of post-migration education.

4. Data, Measures and Methods

The present study utilizes a national longitudinal dataset: the Longitudinal Survey of Immigrants to Canada (LSIC, waves 1 and 2), which follows the same group of newly arrived immigrants during their first few years in Canada. The LSIC was conducted jointly by Statistics Canada and Citizenship and Immigration Canada, under the Policy Research Initiative. The survey was conducted face-to-face, or in telephone interviews when a face-to-face interview was not possible. The interviews were conducted in fifteen languages. The target population for the survey consisted of immigrants who: (1) arrived in Canada between October 1, 2000 and September 30, 2001; (2) were age 15 years or older at the time of landing; and (3) landed from abroad (Statistics Canada 2005).

By choosing the LSIC dataset, the present study examines the immigrant experience only. Most studies on immigrants' integration have tended to compare immigrants with the native-born, with the native-born used as the control group. Within-group analyses help us to understand the differential factors of success among immigrants and are needed to complement studies in which the native-born are used as the control group. The LSIC is a well-suited dataset for this study for a number of reasons.

First, it is a longitudinal panel: wave 1 data were collected six months after the immigrants' arrival (between April 2001 and May 2002), and wave 2 data were collected two years after arrival (between December 2002 and December 2003). The longitudinal aspect of the survey allows us to control for time-invariant individual heterogeneity and

enables us to examine the effect of post-migration education on immigrants' integration over their first few years in Canada.

Second, the LSIC includes detailed information on new immigrants' pre-migration education and occupation, as well as their labour market and educational activities over the first two years in Canada. In addition, there is a great deal of information on the immigrants' personal characteristics. Such detailed information on new immigrants is not available in any other dataset and makes it possible to conduct within-immigrant analysis of post-migration education.

For the first section of this study, which examines the factors influencing participation in post-migration education, the sample is restricted to immigrants between the ages of 25 and 64 who worked prior to arrival in Canada, and planned to work after immigration. These conditions ensure that only adult immigrants who have completed their initial schooling are included in the analysis and result in a sample size of 6,014 new immigrants. For the second section of the study, in which the labour market effects of post-migration education are examined, the sample is further restricted to immigrants who are employed in wave 2. This results in a sample size of 4,823 immigrants.

Since the first aim of this study is to understand how human capital, financial capital and other characteristics influence new immigrants' participation in post-migration education, the first outcome variable is a dichotomous measure of whether or not the respondent has participated in Canadian education in either wave 1 or wave 2, with '0' representing non-participation and '1' representing participation in education. Post-migration education includes career-related seminars, college and university

courses, trade school courses and high school programs. However, it excludes English or French language training.

The explanatory variables in the first section of the study represent human capital, financial capital and other characteristics. Immigrants' human capital is measured by age, pre-migration education, acceptance of foreign work experience, official language ability, pre-migration occupational status and change of occupation. Age is captured by a group of dummy variables representing 10-year groupings. The youngest group is 25 to 34 years old and the oldest is 55 to 64 years old. In the multivariate analyses in this study, the youngest group (25 to 34 year olds) is designated as the omitted reference category.

Pre-migration education is gauged using a series of dummy variables: (1) high school or less; (2) some post secondary including college; (3) undergraduate; and (4) post-graduate degree. High school or less is designated as the omitted reference category. Acceptance of pre-migration work experience is measured in this study by a self-reported dichotomous variable, coded '1' for those immigrants who report that their previous experience has been accepted by a Canadian employer or professional organization, and '0' for those who either have not tried to get their experience accepted or have had their pre-migration experience rejected by Canadian employers or professional organizations.

Official language ability is measured using a self-reported Likert-type scale indicating level of proficiency in spoken English and/or French. For this measure, '0' represents 'no knowledge of English or French', and '4' represents 'fluent in English or French'. Most previous studies of immigrants' labour market integration have tended to

use first language or official language of the home country as the measure of language ability. The LSIC dataset allows us to go beyond this to actually capture the respondents' language proficiency.

Pre-migration occupational status is captured using three dummy variables: (1) professional/managerial; (2) white collar; and (3) blue collar. Blue collar is set as the omitted reference category. Change of occupation is coded '0' for those who remain in their pre-migration occupation and '1' for those who report changing occupations after immigrating. For the present analysis, financial capital is measured by the amount of savings, in Canadian dollars, brought in when entering Canada.

In addition to human capital and financial capital, the effect of other characteristics, such as ethnicity, gender and immigration category are also examined. Ethnicity is captured by a series of dummy variables representing the largest ethnic groups among immigrants in Canada: (1) White; (2) Chinese; (3) South Asian; (4) Black; (5) Filipino; (6) Arab and West Asian; or (7) other visible minority. The 'other' visible minority group represents ethnic groups with smaller numbers such as Southeast Asians, Latin Americans, Koreans, Japanese and others. Whites are selected as the omitted reference category. Gender is coded '0' for male and '1' for female. Class of immigration is measured by a set of four dummy variables: (1) skilled immigrants; (2) family immigrants; (3) business class immigrants; and (4) refugees. Skilled immigrants form the omitted reference category for this measure.

Several control variables are also included in the analysis, such as marital status, number of children under the age of 18 and city of residence. Since the decision to engage in post-migration education is often a family decision, marital status is measured

by a series of dummy variables: (1) unmarried; (2) married with spouse not working; and (3) married with spouse working. 'Married with spouse working' is selected as the omitted reference category. The city of residence represents the three largest immigrant-receiving centres in Canada: (1) Toronto; (2) Montreal; (3) Vancouver; and (4) other. The other category represents all other CA/CMA's in Canada and is designated as the omitted reference category.

The second section of the study, which examines the labour market effects of post-migration education, utilizes two dependent variables. First, the natural logarithm of weekly employment earnings in wave 2 is used to measure the earnings effect of post-migration education. Second, occupational status in wave 2 is used to examine the effect of post-migration education on career mobility. Immigrants working in a professional or managerial job in wave 2 are coded as '1', while those working in a non-professional or managerial job are coded as '0'.

The main explanatory variable of interest in the second section of the study is participation in post-migration education in wave 1 (approximately 6 months after arrival). In addition, several other factors are controlled for in these analyses. In the earnings regression, age, pre-migration level of education, acceptance of foreign work experience, change of occupation upon arrival in Canada, ethnicity, union status, hours worked per week², marital status and the number of children under the age of 18 are controlled for. In the occupational status regression, the control variables are nearly identical. However, pre-migration occupational status is added and hours of work and union status are removed from the analysis.

² For respondents with more than one job per wave, all job-related variables are based upon the 'main job'. The 'main job' is designated as the one with the greatest hours or the longest tenure. This designation is based on LSIC guidelines.

In order to examine if the effects of post-migration education vary by immigrant characteristics, several interaction effects are also estimated in this section of the study. Specifically, post-migration education is interacted with ethnicity, pre-migration education, change of occupation and acceptance of foreign work experience. Any interaction effects that are found to be non-significant are removed from the final models.

In the first section of the study, binary logistic regression is utilized to examine immigrants' participation in post-migration education. In the second section of the study, OLS regression is utilized to investigate the earnings effects of post-migration education, and logistic regression is used to examine the occupational effects of post-migration education. All multivariate analyses in the present study are conducted using bootstrapping procedures with bootstrap weights provided by Statistics Canada.

5. Findings

Descriptive Statistics

Before examining the multivariate results, it is useful to examine the descriptive statistics, shown in **Tables 1** and **2**. From Table 1, it is evident that few immigrants participate in educational activities when they first arrive in Canada. About 14 percent of the new immigrants in the sample engage in education in wave one of the LSIC. With time, however, more immigrants begin to participate in education, such that by wave two, nearly 32 percent of the sample has taken some form of education in a Canadian institution. Altogether, about 41 percent of respondents participate in post-migration education in either wave one or wave two of the LSIC³.

³ This variable was coded as '1' for respondents who participated in education in wave 1, or in wave 2, or in both waves 1 and 2.

Not surprisingly the immigrants in the sample arrived in Canada with already high levels of education. In fact, nearly half of the respondents (45.6%) have an undergraduate education, and another 24.4 percent have a postgraduate degree. Most respondents also worked in a professional or managerial occupation in their home country (60.8%). Upon arrival in Canada, however, only about 27 percent of respondents report having their foreign work experience accepted by a Canadian employer or professional organization. Most immigrants report some knowledge of either English or French. On average, respondents self-report a score of 3.04 out of 4 on official language ability.

The majority of the new immigrants in the sample are visible minorities. Twenty-four percent are Chinese, 22 percent are South Asian, 5 percent are Black, 8 percent are Filipino, 9 percent are Arab and West Asian, and about 10 percent are members of other visible minorities. Immigrants of European origin make up about 23 percent of the sample. The vast majority of the immigrants settle in Toronto (46.1%), followed by Montreal (14.9%) and Vancouver (12.9%). Most are married, and about half of all married respondents report having an employed spouse. On average, new immigrants bring in about \$28,000 in savings when they enter Canada. Most enter through the skilled worker category (74.4%), although there were also substantial numbers of family class entrants (16.2%). Business class entrants and refugees were fewer in number (4.5% and 4.9% respectively). Lastly, more than half of all new immigrants (52.1 percent) report changing occupations once they arrive in Canada.

Table 2 presents the descriptive statistics of the job-related variables used in the analysis. This table shows that the average weekly income for employed respondents in

wave one is \$513. The average weekly income in wave two is \$597. In wave one, the average hours of work are 38.3 hours per week. By wave two, however, this has increased to 39.5 hours per week. Unionization has also gone up from wave one to wave two. In the first wave, about 8.5 percent of employed individuals work in unionized jobs, but by the second wave, the rate of unionization has improved to 11.1 percent. Lastly, 27.4% of new immigrants worked in a professional or managerial occupation in wave 2. Given that nearly 61% of new immigrants worked in a professional or managerial occupation prior to arrival in Canada, it is evident that new immigrants experience a significant drop in occupational status after immigration. In fact, we find that about 60% of those who worked in a professional or managerial job in their home country were unable to find the same level of job by wave two.

Participation in Post-Migration Education

Table 3 presents the findings of a logistic regression analysis that examines the factors affecting new immigrants' participation in post-migration education. The outcome variable in this analysis is a binary measure of whether or not the respondent has participated in any form of educational activity (other than language training) after arriving in Canada (in either wave one or wave two). This educational activity could include trade or job related courses and seminars, as well as high school, college and university courses. The explanatory variables represent human capital, financial capital and other characteristics that may affect the decision to engage in education.

From Table 3, it is apparent that age at arrival has a monotonically negative relationship with post-migration education. Older immigrants are less likely than younger to engage in post-migration education upon arrival in Canada. Pre-migration

education, on the other hand, is positively related to post-migration education.

Immigrants arriving with higher levels of schooling are more likely to participate in post-migration education than their less-educated counterparts. In fact, having some post-secondary education increases the probability of participating in further education by about 11 percent, relative to the mean of 0.274⁴. For immigrants arriving with an undergraduate degree, the probability of participating in post-migration education increases by about 19 percent. The positive effect of pre-migration education seems to increase only up to the undergraduate university level. Immigrants who have a post-graduate degree are actually slightly less likely to enroll in Canadian educational courses than those with an undergraduate education. The most educated new arrivals (those with a graduate degree) are about 17 percent more likely to engage in post-migration education than those with high school or less, relative to the mean.

Not surprisingly, the acceptance of foreign work experience by a Canadian employer or professional organization dramatically decreases the likelihood of pursuing post-migration education. Immigrants whose foreign experience is accepted are about 15.5 percent less likely to engage in further education than others. Language ability is found to be positively related to post-migration education. A one unit increase in official language ability is associated with a 9 percent increase in the probability of participating in post-migration education, relative to the mean.

Similar to pre-migration education, pre-migration occupational status is also positively related to new immigrants' participation in Canadian education. Those who worked in white-collar occupations prior to arrival in Canada are 7.6 percent more likely

⁴ The coefficients from the logistic regression are not directly interpretable since they are in the form of log-odds. In this paper, these effects are reported as marginal effects. The odds ratios are available from the author upon request.

to enroll in Canadian education than blue-collar workers, while those who worked in professional or managerial occupations are about 9 percent more likely. Changing occupations upon arrival in Canada, however, does not appear to affect the decision to engage in post-migration education.

Although many new immigrants indicate cost as a barrier to furthering their education, the amount of savings brought in to Canada at the time of immigration does not seem to have an impact on educational participation. Total household income was also examined in place of savings at arrival and was also found not to have an effect on post-migration education.

Although women tend to be slightly less likely than men to engage in educational activities, this difference is not statistically significant, and can be explained by other factors. Ethnicity, however, does affect post-migration education. While Chinese, Filipino and Arab and West Asian immigrants are no more or less likely than their European counterparts to participate in Canadian education, Black immigrants are significantly more likely and South Asian and ‘other’ visible minority immigrants are significantly less likely to participate⁵. This finding remains even when other control variables are added or removed from the analysis. Black immigrants are 14.5 percent more likely to participate in Canadian education than their White counterparts, while South Asian immigrants are 8.3 percent less likely to participate.

New immigrants entering through the skilled worker category are the most likely group to engage in education upon arrival in Canada. In contrast, refugees are 10.6 percent less likely, family class immigrants are 12.5 percent less likely, and business

⁵ This finding was examined by comparing the characteristics of the various ethnic groups. No significant differences could be found among the groups to account for the finding.

class immigrants are 17.8 percent less likely to engage in Canadian education, relative to the mean.

Examining the control variables, it is apparent that city of residence does not affect new immigrants' decision to take Canadian education, but family situation does have an effect. Unmarried immigrants are more likely to participate in education than their married counterparts. However, the employment status of the spouse does not seem to influence new immigrants' participation in Canadian education. Lastly, the number of children under the age of 18 is negatively related to post-migration education.

Earnings Effect of Post-Migration Education

In order to examine the effect of Canadian education on the employment integration of new immigrants, regression analysis is first conducted with the natural logarithm of weekly employment earnings as the dependant variable and a dichotomous measure of post-migration education as the main explanatory variable. Other factors that may affect new immigrants' earnings are controlled for in this analysis. The results of this analysis are contained in **Table 4**⁶. The first two columns of Table 4 present the main effect of post-migration education on new immigrants' earnings (model 1). The second two columns present the interaction effect of post-migration education and the acceptance of foreign work experience in Canada (model 2). Other interaction effects with post-migration education, including ethnicity, pre-migration education and change of occupation were also entered into the analysis and were not found to be significant and were therefore dropped from the final model⁷. The interaction between post-migration

⁶ Only those immigrants with paid employment in wave two are included in this regression.

⁷ These interaction effects may be non-significant because of the short period of analysis in the present study (1 year). The model will be re-run with the third wave of LSIC when the data becomes available, which will provide a 3 year analysis period and may yield more robust findings.

education and the acceptance of foreign experience represents the differential earnings effect of engaging in post-migration education for those immigrants whose foreign work experience has been accepted by a Canadian employer or professional organization.

Model 1 shows the main effect of post-migration education on earnings and is presented in the first two columns of Table 4. This model indicates that participation in post-migration education in wave one is associated with higher earnings in wave two (one year later). Those who engaged in post-migration education in wave one enjoy an earnings increase of 4.5 percentage points, controlling for other factors, in wave two.

Examining the control variables, it is clear that female immigrants face an earnings disadvantage. Women earn 17.6 percentage points less than their male counterparts. As expected, pre-migration education improves earnings. However, only those immigrants with a university education enjoy an earnings benefit (other forms of post-secondary education, including college do not improve immigrants' earnings). Immigrants with an undergraduate degree earn 12.1 percentage points more than those with high school or less, while those with a post-graduate degree earn 19.1 percentage points more. Having foreign work experience accepted by a Canadian employer or professional organization has a strong positive effect on earnings⁸. Those immigrants whose work experience has been accepted earn 32.6 percentage points more than those whose experience has not been accepted. Having official language fluency improves immigrants' earnings by 9.8 percentage points.

⁸ The acceptance of foreign work experience is a self-reported measure and so may be influenced by the immigrant's level of success in the labour market (i.e. the causality may be in the opposite direction). However, since the dependent variable represents earnings in wave 2 of the survey, one full year after the 'acceptance of foreign work experience' self report has been given, it is believed that 'acceptance of foreign work experience' influences earnings, and not the other way around.

Age has a negative effect on new immigrants' earnings. While there is no significant difference in earnings between 25 to 34 year olds and 35 to 44 year olds, immigrants above the age of 44 face an earnings disadvantage. Those between the ages of 45 and 54 years earn 8.9 percentage points less than their younger counterparts, while those between 55 and 64 earn 20.5 percentage points less.

All visible minority immigrants earn less than those from European backgrounds. The Chinese earn 14.8 percentage points less, South Asians earn 18.9 percentage points less, Blacks earn 17.6 percentage points less, Filipinos earn 12.4 percentage points less, Arab and West Asians earn 16.9 percentage points less and 'other' visible minorities earn 11.1 percentage points less than their White counterparts.

Settling in either Montreal or Vancouver has a negative effect on new immigrants' earnings. Those living in Montreal earn 10.6 percentage points less than immigrants living in other Canadian cities or towns, while those living in Vancouver earn 5.7 percentage points less. Living in Toronto does not have a significant effect on new immigrants' earnings.

Unionization improves new immigrants' earnings by 19.3 percentage points, while each hour worked per week increases earnings by 3.4 percentage points. Changing occupations upon arrival in Canada has a negative effect on immigrants' earnings. Those who changed occupations earn 7.8 percentage points less than their counterparts who remained in their pre-migration occupation. Being married improves earnings by 5.2 percentage points, but having children under the age of 18 does not have an effect.

Model 2, in the second two columns of Table 4, shows that immigrants whose foreign work experience has been accepted in Canada gain significantly less from

participating in further education than those whose work experience has not been accepted. In fact, such immigrants are better off (at least in the short term) entering the Canadian labour market than pursuing more education.

Other factors such as ethnicity, pre-migration education and changing occupations do not seem to affect the earnings benefits of post-migration education. For simplicity, these interactions were dropped from the final model. The removal of these non-significant interaction terms did not change any other coefficients in the model⁹. These interactions may have been non-significant because of the short period of analysis in the present study (1 year). The models will subsequently be re-run with the third wave of the LSIC when it becomes available, which will provide a three year period of analysis.

Occupational Effect of Post-Migration Education

While earnings are one important measure of immigrants' labour market integration, using them as the sole indicator of integration may be problematic since new immigrants may improve their earnings by accepting high-risk or undesirable jobs that do not coincide with their skills. It is therefore important to also examine occupational status since this captures employment integration more completely than just earnings.

Table 5 presents the results of a logistic regression analysis in which the dependent variable is a dichotomous measure of occupational status ('professional/managerial' versus 'non-professional/managerial') in wave two, and the main explanatory variable is participation in post-migration education in wave one. Other factors that may affect new immigrants' occupational status are also controlled for in this analysis. The first two columns of Table 5 present the main effect of post-migration education on new immigrants' occupational status (model 1). The second two

⁹ The results of the full model, with all interactions left in, are available from the author upon request.

columns present the interaction effect of post-migration education and the acceptance of foreign work experience in Canada (model 2). Similar to the earnings analysis, other interaction effects, including ethnicity, pre-migration education and change of occupation were also entered into this analysis and were not found to be significant. Therefore, these interactions dropped from the final model¹⁰.

From Model 1, it is apparent that participating in post-migration education in wave one is indeed associated with attaining a professional or managerial job in wave two. Those who engaged in further education are 7.4 percent more likely to work in a professional or managerial job in wave two than those who did not participate in further education.

Examining the control variables, we find that female immigrants are about 3.7 percent less likely to work in a professional or managerial occupation than their male counterparts, relative to the mean. As in the earnings analysis, pre-migration education improves the likelihood of working in a professional or managerial job. Immigrants with an undergraduate degree are 11.4 percent more likely to work in a high status job, and immigrants with a graduate degree are 23.3 percent more likely to work in a high status job than those with high school education or less. Also as in the earnings analysis, other forms of post-secondary education, including college, do not improve immigrants' likelihood of working in a professional or managerial job.

Having foreign work experience accepted by a Canadian employer or professional organization has a strong positive effect on occupational status. Those immigrants whose work experience has been accepted are about 24 percent more likely to work in a high

¹⁰ As in the earnings analysis, these interaction effects may be non-significant because of the short period of analysis in the present study (1 year). The model will be re-run with the third wave of LSIC when the data becomes available, which will provide a 3 year analysis period and may yield more robust findings.

status job than those whose experience has not been accepted. Having official language fluency improves immigrants' probability of working in a professional or managerial job by about 11 percent.

Age does not appear to be related to occupational status. However, nearly all visible minority immigrants are less likely to work in a high status occupation than their European counterparts. Settling in Toronto has a negative effect on new immigrants' occupational status. Living in Montreal or Vancouver does seem affect occupational status.

Changing occupations upon arrival in Canada has a negative effect on immigrants' occupational status. Those who changed occupations are 4.6 percent less likely to work in a professional or managerial job than their counterparts who remained in their pre-migration occupation. Marital status does not seem to affect occupational status, but having children under the age of 18 has a slight negative effect.

As in the earnings analysis, Model 2, in the second two columns of Table 5, shows that immigrants whose foreign work experience has been accepted in Canada benefit significantly less from participating in further education than those whose work experience has not been accepted.

Other factors such as ethnicity, pre-migration education and changing occupation do not seem to affect the relationship between post-migration education and occupational status. Therefore these interactions were dropped from the final model. The removal of these non-significant interaction terms did not change any other coefficients in the model¹¹.

¹¹ The results of the full model, with all interactions left in, are available from the author upon request.

6. Discussion and Conclusion

The present analysis examines post-migration educational investments among newly arrived immigrants to Canada to determine the factors influencing participation in post-migration education, as well as the effects of post-migration education on new immigrants' labour market success.

Determinants of Post Migration Education

In the first section of the study, previous human capital is indeed found to be a determinant of post-migration educational investment. As expected, age at migration is found to be negatively related to post-migration education. This is similar to the findings of Chiswick and Miller (1994) and Hum and Simpson (2003). Immigrants arriving early in their careers may have lower opportunity costs and greater incentive to invest in higher education. They may also find Canadian education more achievable than their older counterparts.

Confirming the results of Chiswick and Miller (1994), Cobb-Clark et al. (2005) and Tubergen and Werfhorst (2006), we find that pre-migration education acts as a complement to post-migration education, rather than as a substitute. This may be because educated migrants find the cost of further education to be lower than their less educated counterparts. Also, they may place greater value on formal education than less educated immigrants. Not surprisingly, acceptance of foreign work experience is negatively related to post-migration education. This confirms the notion that new immigrants engage in Canadian education at least partly because of the discounting and non-recognition of their foreign experience. Canadian education may be a good way for these immigrants to signal their skills and previous experience to Canadian employers.

Official language knowledge is also found to be positively related to post-migration education. Language knowledge allows immigrants to access information about educational opportunities, and may make Canadian education more achievable for new immigrants. Pre-migration occupational status is another component of human capital that is found to be positively related to post-migration education. This may indicate that immigrants with higher status occupations before arrival have greater expectations for their Canadian careers and therefore want to retrain themselves to achieve their previous occupational level. It may also be a reflection of the fact that higher status professional occupations often have significant licensing hurdles to overcome, and Canadian credentials may be required to qualify for these licenses. Immigrants with a managerial background may require Canadian education to signal to employers that they understand the Canadian context and social norms. It may also be important to legitimize their authority if they are to supervise subordinates.

While human capital is found to affect post-migration educational investment, we fail to find any relationship between financial capital and post-migration education. Immigrants may be using their initial savings to start a business or run their household while searching for employment. In any case, this data indicates that savings at arrival do not seem to be a barrier to new immigrants' educational investment.

Gender is not found to affect new immigrants' post-migration educational decisions, but ethnicity is found to have an unexpected relationship with post-migration education. Black immigrants are found to be more likely to invest in Canadian education than other ethnic groups. This is not surprising since Blacks are known to face the greatest labour market disadvantage in Canada and therefore may feel that they must

invest in further education to improve their position. What is somewhat surprising is that South Asians and ‘other’ visible minorities are significantly less likely to invest in post-migration education than their White counterparts. Reasons for this finding are not obvious and should be further explored in subsequent research.

Lastly, immigrants entering through the skilled worker category are found to be the most likely to invest in Canadian education. This is somewhat different from the findings of Borjas (1982) and Hashmi-Khan (1997) and implies that when skilled workers, with high expectations of career success, are unable to reach their anticipated level of success, they invest in Canadian-specific human capital. Immigrants entering through other classes may have less expectation for labour market success in Canada.

Effect of Post Migration Education on Labour Market Integration

In the second section of the study, it is found that participation in post-migration education does indeed improve integration as measured by both earnings and occupational status. However, those immigrants whose foreign work experience is accepted in Canada benefit far less (at least in the short term) from post-migration education than those whose work experience has not been accepted. So, immigrants whose previous experience has been accepted in Canada may be better off entering the labour market and gaining Canadian human capital through employment than investing in formal educational courses.

It should be kept in mind that the two waves of data used in this study are only one year apart. This short time span is not enough to understand the true effect of post-migration education on immigrants’ labour market integration. As the next step in this study, the analysis will be extended to include the third wave of the LSIC. The third

wave of the LSIC will examine the position of the new immigrants three years after their arrival. The inclusion of this data should provide a clearer understanding of the effects of Canadian education on new immigrants' employment success.

The present study provides a preliminary look at post-migration education among newly arrived immigrants in Canada. Since the devaluing of foreign qualifications and work experience is known to be a major barrier facing new immigrants in Canada, investment in post-migration education is an important way for new arrivals to overcome this barrier and succeed in the labour market. Therefore, it is important not only to understand the factors affecting new immigrants' decision to engage in education, but also whether this education actually helps new immigrants to integrate into Canadian employment.

The overall implication of the present study is that, as in the general population, post-migration education may contribute to cumulative economic disadvantage for some immigrants. Younger new arrivals with already high levels of education and language ability engage in further education and improve their economic prospects while those who face the greatest disadvantage in the Canadian labour market (older, less educated, unable to speak English or French) fall further behind. Efforts to improve the accessibility of Canadian education for all immigrants, but particularly the most disadvantaged immigrants, may increase their participation and better their chances of integrating into the Canadian labour market.

7. Bibliography

- Albrecht, J.W., G.J. van den Berg and S.B. Vroman. (2004), The knowledge lift: The Swedish adult education program that aimed to eliminate low worker skill levels, Working paper 17, IFAU, Uppsala.
- Angrist, J. and A. Krueger. (1991). "Does compulsory school attendance affect schooling and earnings", Quarterly Journal of Economics, Vol. 106, 979-1014.
- , G.W. Imbens and D.B. Rubin. (1996). "Identification of causal effects using instrumental variables", Journal of the American Statistical Association, Vol. 91, 443-455.
- Aslanian, C.B. (2001). Adult Students Today. New York, NY: The College Board.
- Aydemir, A. and M. Skuterud. (2005). "Explaining the deteriorating entry earnings of Canada's immigration cohorts: 1966-2000", Canadian Journal of Economics, Vol. 38, No. 2, 641-671.
- Baker, M. and D. Benjamin. (1994). "The performance of immigrants in the Canadian labour market", Journal of Labor Economics, Vol. 12, No. 3, 369-405.
- Basran, G. and L. Zong. (1998). "Devaluation of foreign credentials as perceived by non-white professional immigrants", Canadian Ethnic Studies, Vol. 30, No. 3, 6-23.
- Beach, C.M. and C. Worswick. (1993). "Is there a double negative effect on the earnings of immigrant women?", Canadian Public Policy, Vol. 19, No. 1, 36-53.
- Bloom, D.E., G. Grenier and M. Gunderson. (1995). "The changing labour market position of Canadian immigrants", Canadian Journal of Economics, Vol. 28, No. 4, 987-1005.
- Borjas, G. (1982). "The earnings of male Hispanic immigrants in the United States", Industrial and Labor Relations Review, Vol. 35, No. 3, 343-353.
- Bratsberg, B. and J.F. Ragan Jr. (2002). "The impact of host-country schooling on earnings: A study of male immigrants in the United States", The Journal of Human Resources, Vol. 37, No. 1, 63-105.
- Breen, R. and L.P. Cooke. (2005). "The persistence of the gendered division of domestic labour", European Sociological Review, Vol. 21, 43-57
- Card, D. (1999). "The causal effect of education on earnings", in Handbook of Labor Economics Volume 3A, edited by O. Ashenfelter and D. Card, Amsterdam, New York and Oxford: Elsevier Science, North-Holland, 1801-63.

- (2001). "Estimating the return to schooling: Progress on some persistent econometric problems", Econometrica, Vol. 69, September.
- Chiswick, B.R. (1978). "The effect of Americanization on the earnings of foreign-born men", Journal of Political Economy, Vol. 86, 897-921.
- and Miller, P.W. (1985). "Immigrant generation and income in Australia", Economic Record, 61, 540-553.
- (1993). The endogeneity between language and earnings: an international analysis, Department of Economics, University of Western Australia.
- (1994). "The determinants of post-immigration investments in education", Economics of Education Review, Vol. 13, 163-177.
- Chiswick, B.R., Y.L. Lee and P.W. Miller. (2005). "Immigrant earnings: A longitudinal analysis", Review of Income and Wealth, Vol. 51, No. 4, 485-503.
- Citizenship and Immigration Canada. (1998). The Economic Performance of Immigrants: Immigration Category Perspective. Ottawa, ON: Citizenship and Immigration Canada.
- Cobb-Clark, D., M.D. Connolly and C. Worswick. (2005). "Post-migration investment in education and job search: A family perspective", Journal of Population Economics, Vol. 18, 663-690.
- Corman, H. (1983). "Postsecondary education enrollment responses by recent high school graduates and older adults", The Journal of Human Resources, Vol.18, No. 2, 247-268.
- Deary, I.J. and G. Der. (2005). "Reaction time, age, and cognitive ability: Longitudinal findings from age 16 to 63 years in representative population samples", Aging, Neuropsychology, and Cognition, Vol. 12, 187-215.
- Ekström, E. (2003). Essays on Inequality and Education, Avhandlingssuppsats, Economic Studies 76, Uppsala Universitet.
- Frenette, M. and R. Morissette. (2003) "Will they ever converge? Earnings of immigrant and Canadian-born workers over the last two decades", Analytical Studies Branch Research Paper 215, Statistics Canada.
- Friedberg, R.M. (2000). "You can't take it with you? Immigrant assimilation and the portability of human capital", Journal of Labour Economics, Vol. 18, No. 2, 221-251.

- Gower, D. (1997). "Facing the future: Adults who go back to school", Perspectives on Labour and Income, Vol. 9, No. 3 (Statistics Canada catalogue no. 75-001-XPE), 32-39.
- Grant, H. and A. Sweetman. (2004). "Special Issue: The economics of immigration and Canada's cities". Canadian Journal of Urban Research, Vol. 13, No. 1.
- Green, D. and C. Worswick. (2002). Earnings of immigrant men in Canada: The roles of labour market entry effects and returns to foreign experience, Research paper, Strategic Research and Review, Citizenship and Immigration Canada.
- Griliches, Z. (1977). "Estimating the returns to schooling: Some econometric problems", Econometrica, Vol. 45, January, 1-22.
- Gunderson, M. and H. Krashinsky. (2004). Rates of return to apprenticeship and post secondary education in Ontario, Report to Ontario Ministry of Training, Colleges and Universities.
- Hagggar-Gu enette, C. (1991). "Lifelong learning: who goes back to school?", Perspectives on Labour and Income, (Statistics Canada catalogue no. 75-001E), 24-30.
- Hashmi-Khan, A. (1997). "Post-migration investment in education by immigrants in the United States", Quarterly Review of Economics and Finance, Vol. 37, 285-313.
- Hum, D. and W. Simpson. (2003). "Job-related training activity by immigrants to Canada", Canadian Public Policy, Vol. 29, No. 4, 469-489.
- Hum, D. and W. Simpson. (2004). "Economic Integration of Immigrants to Canada: A Short Survey", Canadian Journal of Urban Research, Vol. 13, No. 1, 46-61.
- Jenkins, A., A. Vignoles, A. Wolf and F. Galindo-Rueda. (2003). "The determinants and effects of lifelong learning", Applied Economics, Vol. 35, No. 16, 1711-1721.
- Kane, T.J. and C.E. Rouse. (1995). "Labor-market returns to two- and four-year college", American Economic Review, Vol. 85, No. 3, 600-614.
- Leigh, D.E. and A.M. Gill. (1997). "Labor market returns to community colleges: Evidence for returning adults", The Journal of Human Resources, Vol. 32, No. 2, 334-353.
- Lemieux, T. (2001). The causal effect of education on earnings in Canada, Department of Economics, University of British Columbia.
- and D. Card. (2001). "Education, earnings, and the Canadian G.I. Bill", Canadian Journal of Economics, Vol. 34, No. 2, 313-344.

- Li, P. (2001). "The market worth of immigrants' educational credentials", Canadian Public Policy, Vol. 27, No. 1, 23-38.
- Li, P. (2003). "Initial earnings and catch-up capacity of immigrants", Canadian Public Policy, Vol. 29, No. 3, 319-337.
- Light, A. (1995). "The effects of interrupted schooling on wages", The Journal of Human Resources, Vol. 30, No. 3, 472-502.
- Palameta, B. and X. Zhang. (2006). "Does it pay to go back to school?", Perspectives on Labour and Income, Vol.18, No. 2, 5-12.
- Reitz, J.G. (2001). "Immigrant skill utilization in the Canadian labour market: Implications for human capital research", Journal of International Migration and Integration, Vol. 2, No. 3, 347-378.
- (2003). "Educational expansion and the employment success of immigrants in the United States and Canada, 1970-1990", In Host Societies and the Reception of Immigrants, edited by J.G. Reitz, San Diego, CA: Center for Comparative Immigration Research, University of California, 579-613.
- (2007). "Immigrant employment success in Canada, part 1: Individual and contextual causes ", Journal of International Migration and Integration, forthcoming.
- Riddell, W.C. (2004). "Education, skills and labour market outcomes: Exploring the linkages in Canada", In Educational Outcomes for the Canadian Workplace, edited by J. Gaskell and K. Rubenson, Toronto, ON: University of Toronto Press, 21-55.
- Statistics Canada. (2003). 2001 Census: Analysis Series: Canada Ethnocultural Portrait – A Changing Mosaic, (Catalogue no. 96F0030XIE2001008). Ottawa, ON: Minister of Industry.
- (2005). Longitudinal Survey of Immigrants to Canada User Guide. Ottawa, ON: Statistics Canada.
- Tubergen F.V. and H.V. de Werfhorst. (2006). "Post migration investments in education", Paper prepared for the RC-28 meeting in Nijmegen, Netherlands.
- Zhang, X. and B. Palameta. (2006). "Participation in adult schooling and its earnings impact in Canada", Analytical Studies Branch Research Paper 276, Statistics Canada.

Table 1: Characteristics of the Sample

Variable	N=6,014
Participated in post-migration education in Wave 1	14.3%
Participated in post-migration education in Wave 2	31.8%
Participated in education in either Wave 1 or Wave 2*	40.6%
Female	42.5%
High school or less	11.5%
Some post secondary	18.6%
Undergraduate	45.6%
Postgraduate	24.4%
Foreign work experience accepted in Canada	26.7%
English or French Fluency (0-4)	3.040
Age (years)	35.93
Age between 25 and 34	51.6%
Age between 35 and 44	34.3%
Age between 45 and 54	11.2%
Age between 55 and 64	3.0%
White	22.8%
Chinese	24.0%
South Asian	21.6%
Black	4.6%
Filipino	7.8%
Arab and West Asian	9.4%
Other Visible minority	9.6%
Montreal	14.9%
Toronto	46.1%
Vancouver	12.9%
Other city	26.2%
Unmarried or spouse not in Canada	18.7%
Married, spouse not working	40.6%
Married, spouse working	40.6%
Number of children	0.888
Savings at arrival	\$27,779
Professional/managerial pre-migration occupation	60.8%
White collar pre-migration occupation	25.2%
Blue collar pre-migration occupation	12.6%
Changed occupation upon arrival in Canada	52.1%
Skilled immigrant	74.4%
Family class immigrant	16.2%
Business class immigrant	4.5%
Refugee	4.9%

* This variable represents individuals who have participated in education in wave 1 only, or wave 2 only, or waves 1 and 2.

Table 2: Work Related Characteristics of the Sample

Variable	N=4,823
Weekly income in wave 1	\$513
Weekly income in wave 2	\$597
Log of weekly income in wave 1	5.99
Log of weekly income in wave 2	6.15
Hours worked per week in wave 1	38.3
Hours worked per week in wave 2	39.5
Unionized in wave 1	8.5%
Unionized in wave 2	11.1%
Professional/managerial occupation in wave 2	27.4%

Note: For work related variables, only employed individuals are included in the sample, reducing sample size to 4,823.

Table 3: Participation in Post-Migration Education in either Waves 1 or 2

	Parameter Estimate	Standard Error	Marginal Effect
Female	-0.097	0.070	-0.023
<i>Education (high school or less)</i>			
Some post secondary	0.461***	0.135	0.111
Undergraduate degree	0.777***	0.133	0.187
Postgraduate degree	0.709***	0.144	0.170
Foreign work experience accepted	-0.644***	0.080	-0.155
Changed occupation	-0.014	0.065	-0.003
Official language ability	0.372***	0.039	0.089
<i>Pre-migration occupational status (Blue-collar)</i>			
White-collar	0.317***	0.115	0.076
Professional/Managerial	0.380***	0.107	0.091
Savings at arrival ('000)	-0.001	0.001001	0.000
<i>Age (25 to 34)</i>			
35 to 44	-0.172**	0.079	-0.041
45 to 54	-0.423***	0.119	-0.102
55 to 64	-1.000***	0.281	-0.240
<i>Ethnicity (White)</i>			
Chinese	0.013	0.093	0.003
South Asian	-0.346***	0.099	-0.083
Black	0.606***	0.171	0.145
Filipino	0.0005	0.137	0.000
Arab and West Asian	0.196	0.117	0.047
Other VM	-0.317**	0.131	-0.076
<i>Immigration Class (Skilled)</i>			
Family class	-0.519***	0.109	-0.125
Business class	-0.740***	0.194	-0.178
Refugee	-0.441***	0.145	-0.106
<i>City of residence (Other)</i>			
Montreal	-0.101	0.104	-0.024
Toronto	-0.037	0.078	-0.009
Vancouver	0.101	0.109	0.024
<i>Marital status (Married, spouse working)</i>			
Married, spouse not working	0.117	0.073	0.028
Unmarried	0.175*	0.096	0.042
Number of children	-0.068*	0.041	-0.016
Intercept	-1.936***	0.206	
Mean of Dependent variable	0.406		
# of observations	5,672		
Pseudo R sq.	0.155		

Significance: ***<.01; **<.05; *<.10

Table 4: Effect of Post-Migration Education on Earnings in Wave 2

	Model 1		Model 2	
	Parameter Estimate	Standard Error	Parameter Estimate	Standard Error
Post-migration education in wave 1	0.045**	0.023	0.082***	0.025
Female	-0.176***	0.017	-0.176***	0.017
<i>Education (High school or less)</i>				
Some post secondary	0.006	0.023	0.007	0.023
Undergraduate degree	0.121***	0.022	0.122***	0.022
Postgraduate degree	0.192***	0.026	0.193***	0.026
Foreign work experience accepted	0.326***	0.019	0.344***	0.020
Official language ability	0.098***	0.007	0.096***	0.007
<i>Age (25 to 34)</i>				
35 to 44	-0.027	0.018	-0.027	0.018
45 to 54	-0.089***	0.028	-0.089***	0.028
55 to 64	-0.205***	0.043	-0.204***	0.043
<i>Ethnicity (White)</i>				
Chinese	-0.148***	0.024	-0.148***	0.024
South Asian	-0.189***	0.023	-0.188***	0.023
Black	-0.176***	0.037	-0.176***	0.038
Filipino	-0.124***	0.025	-0.123***	0.025
Arab and West Asian	-0.169***	0.034	-0.168***	0.034
Other VM	-0.111***	0.037	-0.108***	0.037
<i>City of residence (Other)</i>				
Montreal	-0.106***	0.029	-0.107***	0.029
Toronto	0.004	0.018	0.004	0.018
Vancouver	-0.057**	0.024	-0.056**	0.024
Unionized	0.193***	0.023	0.193***	0.023
Hours worked per week	0.034***	0.002	0.034***	0.002
Changed occupation	-0.078***	0.015	-0.077***	0.015
Married	0.052**	0.023	0.051**	0.023
Number of children	-0.007	0.009	-0.006	0.009
Post-migration education* Frgn work exp accepted	-	-	-0.136***	0.051
Intercept	4.531***	0.078	4.527***	0.078
Mean of Dependent Variable	6.15			
# of observations	4,119			
R sq	0.55		0.55	

Significance: ***<.01; **<.05; *<.10

Table 5: Effect of Post-Migration Education on Occupational Status in Wave 2

	Model 1		Model 2	
	Parameter Estimate	Standard Error	Parameter Estimate	Standard Error
Post-migration education in wave 1	0.370***	0.11	0.523***	0.137
Female	-0.186**	0.089	-0.185**	0.089
<i>Education (High school or less)</i>				
Some post secondary	0.029	0.223	0.038	0.225
Undergraduate degree	0.572***	0.217	0.581***	0.218
Postgraduate degree	1.172***	0.222	1.181***	0.223
Foreign work experience accepted	1.213***	0.086	1.292***	0.095
Official language ability	0.551***	0.066	0.548***	0.066
<i>Age (25 to 34)</i>				
35 to 44	-0.101	0.091	-0.100	0.091
45 to 54	0.045	0.13	0.047	0.131
55 to 64	0.227	0.253	0.242	0.254
<i>Ethnicity (White)</i>				
Chinese	-0.129	0.124	-0.127	0.124
South Asian	-0.554***	0.119	-0.544***	0.119
Black	-0.512***	0.188	-0.509***	0.187
Filipino	-0.910***	0.185	-0.904***	0.184
Arab and West Asian	-0.276	0.181	-0.275	0.182
Other VM	0.416***	0.147	0.435***	0.148
<i>City of residence (Other)</i>				
Montreal	0.080	0.136	0.078	0.136
Toronto	-0.200**	0.094	-0.198**	0.094
Vancouver	-0.015	0.135	-0.015	0.135
Changed occupation	-0.230***	0.082	-0.229***	0.082
Married	0.103	0.127	0.104	0.127
Number of children	-0.076*	0.046	-0.074	0.046
<i>Pre-migration occupational status (Blue-collar)</i>				
White-collar	0.355***	0.206	0.362*	0.206
Professional Managerial	1.668***	0.191	1.674***	0.191
Post-migration education* Frgn work exp accepted	-	-	-0.488**	0.231
Intercept	-4.745***	0.333	-4.792***	0.335
Mean of Dependent Variable	0.274			
# of observations	4,823			
Pseudo R sq	0.34		0.34	

Significance: ***<.01; **<.05; *<.10