

**Place of Birth, Location of Study and Immigrants' Relative
Earnings**

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Abstract

Using 2006 Canadian Census data, this paper focuses on the economic performance of highly educated immigrants who were born in less developed countries and who studied inside or outside Canada. There are two outcomes that are studied for immigrants and Canadian-born: access to a full-time full-year job and earnings. This study finds that immigrants from all places of birth have a lower probability of having a full-time full-year job than Canadian-born individuals and that, for most places of birth; immigrants who studied outside Canada have a lower probability of having such a job than immigrants who studied in Canada. People with more years of schooling earn more for both immigrants and Canadian-born, but immigrants earn less than the Canadian-born workers with the same educational attainment. Among the immigrants, some completed their higher education in their own country while others studied in Canada. The results show that immigrants who studied in Canada tend to earn more than immigrants who studied outside Canada.

1. Introduction

Canada is known to be a country of immigration. More and more people are willing to migrate to Canada not only because of the suitable living environment, but also because they are eager to join some outstanding educational institutions. Based on the *Times Higher Education World University Ranking* published by Reuters (2013), 19 Canadian universities are listed among the top 400 universities of the world. This attracts more and more immigrants to study in Canada. Some immigrants believe that Canadian credentials are necessary to get a good job in the Canadian labour market, while others think that it is possible to get a job in Canada with higher education from their countries of origin. Thus, some immigrants become highly educated in their home countries, while others choose to get a higher education diploma in Canada even if they already received a degree in their countries of origin. According to the 2006 Census, immigrants account for 19.8% of the total population of Canada and for 69% of Canadian population growth between 2001 and 2006 (Statistics Canada 2007).

In this paper, I focus on highly educated immigrants (those who have completed at least one post-secondary degree) who were born in less developed countries (I exclude the United States and Europe) and on their economic performance in the Canadian labour market. Education is one of the most significant factors that can influence an individual's earnings. However, as different countries have different educational systems, there also exists an earnings gap between immigrant and Canadian-born workers with the same educational attainment. Some immigrants get their diplomas from their home countries and try to find a job in Canada, but the Canadian labour market seems to prefer immigrants and native-born individuals who obtained their credentials in Canadian institutions. Furthermore, language ability must be taken into

consideration, as Canadian employers are more likely to hire people who know one or both of the official languages.

For immigrants, higher educational attainment does not imply that they will have a better performance in the Canadian labour market. The purpose of this paper is to develop a better understanding of the performance of highly-educated immigrants from less developed countries. Using micro data from the 2006 Canadian Census, the sample of this study includes immigrants and Canadian-born people with a post-secondary or higher degree aged from 25 to 64. Two main labour market outcomes are analyzed. The first one is access to a full-time full-year job in Canada which is estimated with a linear probability model (I also estimated with a probit model and the results are similar; therefore, only the ordinary least squares results are presented). The second one is the log of the wage level for the full-time full-year workers which is estimated with ordinary least squares model. For these two regressions, the explanatory factors include standard variables such as education, experience, language ability, province, and socio-demographic characteristics. In addition, I also include immigration characteristics, such as years since migration, place of birth, and place of birth interacted with a binary variable indicating that the location of study is not Canada.

Some of the findings are as follows. Immigrants from all places of birth have a lower probability of having a full-time full-year job than Canadian-born individuals. In addition, for most places of birth, immigrants who studied outside Canada have a lower probability of having a full-time full-year job than immigrants who studied in Canada. Both immigrant and Canadian-born workers with more years of schooling earn more, but immigrants earn less than the Canadian-born workers with the same educational attainment. Among immigrants, some finished their higher education in their own country while others chose to study in Canada. The results

show that immigrants who studied in Canada tend to earn more than immigrants who studied outside Canada.

This paper consists of four sections. In section 2, I provide a literature review, first of studies on the relative earnings of immigrants in general, and then of studies about the effect of foreign education. In section 3, I present the data and the methodology including a discussion of the samples, the variables and the two regression models. In section 4, I analyse the results of each model respectively. The last section is the conclusion that summarizes the main findings of this study.

2. Literature Review

It is well acknowledged that educational attainment affects earnings. People who have completed more years of schooling tend to earn more. However, there exist important wage gaps across different groups of workers and especially between immigrants and Canadian-born workers, even when they have the same educational attainments. For example, Canadian-born workers earn more than immigrants. In addition, there also exist wage gaps between immigrants who studied in their own countries and those who studied in Canada. Thus, location of study and place of birth of individuals have impacts on earnings. I will first survey the literature on differentials between immigrants and domestic-born Canadians. I will then discuss how the location of study can affect earnings.

2.1 Studies on the relative earnings of immigrants

In an influential article, Chiswick (1978) discusses the effects of Americanization on the earnings of foreign-born men by examining the impact of foreign birth and length of time in the United States on the earnings of white men. Based on the 1970 Census of population, he finds

that foreign-born men have average schooling of 11 years compared to 12 years for the native-born in the age group 25 to 64. Chiswick also notices that years of schooling and marital status differences can also lead to lower earnings for the foreign-born compared to the native born. Furthermore, when immigrants first enter the labour market, they earn approximately 25% less than natives. Finally, Chiswick concludes that there are some factors that would lower the earnings of the foreign born compared with the native born, such as schooling and marital status differences. In contrast, there are also factors that would raise the relative earnings of the foreign born such as the larger proportion living in urban areas and living outside the South, and the longer labour market experience. He concludes that the longer the landing time, the more immigrants earn.

Meng (1987) does a similar study for Canada. He uses the Canadian National Mobility Survey (1973) to estimate the earnings of Canadian immigrant and native-born males. Generally speaking, foreign-born males earn less than the native-born at the beginning, but earnings increase rapidly with Canadian labour market experience. More precisely, after 14 years, Meng estimates that the foreign-born males' earnings are equal or greater than those of the native-born. The results show that immigrants have an earnings disadvantage when they enter the country that is estimated at 15% less than comparable Canadian-born workers. There exists a diminishing wage gap with time spent in Canada, and after 14 years, the wage gap no longer exists. Both Chiswick and Meng reach the same conclusion: foreign-born males earn less than the native-born when they arrive, but they catch up after a few years.

Bloom and Gunderson (1991) use pooled data from the 1971 and 1981 Canadian censuses to analyse the earnings of Canadian immigrants. They try to evaluate the usefulness of cross-sectional analyses in measuring immigrant earnings growth, and they also focus on the

impact of selective outmigration as well as of job-matching on the shape of the immigrant earnings distribution as duration of stay increases. They find that there is a relatively low entry wage for immigrants. Also, they notice that because the change in Canada's immigration policies in 1974 led to a dramatic increase in the proportion of immigrants admitted on the basis of family ties, the unobserved quality of immigrants' labour market skills decreased.

In a related study, Bloom, Grenier and Gunderson (1995) use pooled 1971, 1981, and 1986 Canadian census data to evaluate the changing labour market position of Canadian immigrants. Their study is an expansion of Bloom and Gunderson (1991) that adds evidence from the 1986 Census, which includes the effect of the recession of the early 1980s. They again estimate that the earnings of Canadian immigrants at the time of immigration fall short of those of comparable Canadian-born individuals. They also try to see if immigrants' earnings grow more rapidly through time than those of the Canadian-born. Their results show that recent immigrant cohorts do not assimilate as well into the Canadian labour market as earlier ones. In addition, assimilation took longer and longer after 1965, and has been particularly slow for immigrant men from Asia, Africa and Latin America. They conclude that changing Canadian immigration policy, labour market discrimination against visible minorities and prolonged recession all had an influence on the decline in the relative economic position of immigrants.

Immigrants earn less than the native born in Canada. Ferrer and Riddell (2004) use the 1981, 1986, 1991 and 1996 censuses to examine how the human capital of immigrants is rewarded in the Canadian labour market. They notice that both the Canadian-born and immigrants earn substantially more when they have a university bachelor's degree. They find that the labour market experience of native-born workers is valued more than the experience of immigrants in their countries of origin. For immigrants, there is an increase in earnings

associated with a degree or diploma which is higher than that of a comparable Canadian worker for given years of education and experience. They also find that native-born Canadians with a high school degree earn approximately 6 percent more than people who completed the same number of years of schooling but did not complete secondary school.

Chiswick and Miller (2005) also reach similar conclusions. They use the 2000 Census of the United States to find reasons as to why the payoff to schooling is smaller for immigrants. They find that the return to schooling in the U.S. for the foreign-born is less than that of the native born. Their results show that the native-born have a return to education of 10.6% while for the foreign born, the return to education is only 5.3%.

I study immigrants who get a higher education degree. Picot, Hou and Coulombe (2007) show that there were major improvements in the educational attainments of immigrants coming to Canada by the year 2000. Immigrants in Canada have increased their education levels year after year. According to 2006 Census data, 51% of recent immigrants have university degrees, which is twice as high as for the domestic-born population. However, even with higher education levels, immigrants still face a higher unemployment rate and lower earnings than Canadian-born workers. In the same study, Picot, Hou and Coulombe also find that even when recent immigrants land in Canada with a high education level, they still have a low entry income. Again, based on the research of Reitz (2001), their results show that because of lower immigrant skill qualifications, underutilization of immigrant skills and pay inequities, an earnings gap exists between Canadian-born and immigrant workers.

Anisef, Sweet, and Adamuti-Trache (2010) use the data from three waves of the Longitudinal Survey of Immigrants to Canada (LSIC) covering the period from 2000 to 2004. They focus on immigrants who had prior university education. By accumulating information

related to the labour market performance of immigrants during their first few years in Canada, they find that there exists a substantial gap between the Canadian-born and foreign-born. The unemployment rate is higher while the wages are lower than those of the Canadian-born workers. In addition, they notice that immigrants who are employed often work in jobs for which they are overqualified.

Bonikowska, Hou and Picot (2011) use Canadian and U.S. census data to examine the performances of highly educated immigrants in the Canadian and U.S. labour markets. They focus on comparing wage differentials of university level educated new immigrant workers in Canadian and in U.S. labour markets from 1980 to 2005. They find that the wages of university-educated new immigrant men decreased over the study period compared to Canadian-born university graduates but increased between 1990 and 2000 in the U.S. They note that the changes in the composition of the new immigration are related to individuals' age, official language ability, region of residence, source country and the language that they speak at home. Although these factors account for most of the observed changes in the relative earning of university-educated immigrants in Canada during the 1980s, this is less true for the more recent cohorts.

The literature surveyed above discusses the labour market performance of immigrants and native-born. It was found that many factors can affect the performance of immigrants in Canadian labour market, such as years of schooling, related working experience, language ability, years since migration, etc. Because immigrants are not familiar with the customs, cultures and labour market when they first enter, they earn less than Canadian-born. As more years are spent in Canada, the earning gap tends to decrease, but not completely. This may be because some immigrants are educated outside Canada while the Canadian labour market prefers

Canadian credentials. Thus, the location of study could be important in explaining the earnings differentials between immigrants and Canadian-born.

2.2 The effect of foreign location of studies

Several recent studies have specifically addressed the relationship between location of study and the earnings of immigrants. Many authors have asserted that the Canadian-born have earning advantages because they receive a Western education, while immigrants have earning disadvantages because the diplomas from their own countries are undervalued. Thus, the location of study also is an important factor that affects the earning differentials between immigrants and Canadian-born workers.

Li (2001) uses the 1996 Canadian Census microdata to compare the incomes of four groups: native-born Canadian degree-holders; immigrant Canadian degree-holders; immigrant mixed education degree-holders (who obtained degrees in their own country and in Canada); and immigrant foreign degree-holders. Li finds that about half of immigrant degree-holders had foreign degrees, and that the other half had either Canadian degrees or mixed education degrees, and that immigrants were more likely than native-born Canadian to be degree-holders. The results indicate that there is a clear earning disadvantage for immigrant foreign degree-holders, especially those who are women and who are of a visible-minority origin.

Bratsberg and Ragan (2002) use U.S. censuses and the National Longitudinal Survey of Youth to examine the impact of host-country schooling on the earnings of male immigrants in the United States. They notice that immigrants with U.S. schooling receive higher wages than immigrants without U.S. schooling. Also, returns to education depend on the level of economic development and the language of the source country. Immigrants who receive education in developed countries with English as an official language always receive higher earnings.

Similarly, immigrants who obtain U.S. schooling and who have more than 11 years of education also receive higher returns.

Zeng and Xie (2004) also study the earning gap between immigrants and the native-born in the United States. They use the 1990 Census Public Use Microsample (PUMS) data to analyse Asian-Americans' earning disadvantage based on place of education. Generally speaking, Asian immigrants earn less than the American Whites with the same educational attainment. In their paper, they mainly discuss earnings disadvantages within four groups: U.S.-born Whites, U.S.-born Asian-Americans, U.S.-educated Asian immigrants, and foreign-educated Asian immigrants. Their main finding is that there are no earning differences among U.S.-born Whites, U.S.-born Asian-Americans and U.S.-educated Asian immigrants. In contrast, compared to the other groups, there is a 16% earning gap for Asian immigrants who studied in foreign countries. Zeng and Xie conclude that the location of education is important to the stratification of Asian-Americans. Their results are similar to those Bratsberg and Ragan (2002).

Sweetman (2004) uses data from the 1986, 1991 and 1996 Canadian censuses to investigate the immigrants' source country educational quality in relation to their Canadian labour market outcomes. He finds that immigrants from countries with poor quality educational outcomes tend to receive a lower average return to their schooling in the Canadian labour market. When compared to immigrants who received education outside Canada, source country school outcomes do not have an influence on those who immigrated at a young age. This emphasizes that educational quality plays a significant role in explaining differences in returns to schooling in the Canadian labour market.

Gilmore and Le Petit (2008) use the Longitudinal Survey of Immigrants to Canada (LSIC) to analyse labour market outcomes by region of postsecondary education. They find that

recent and established immigrants who completed a university level education in Canada or Europe had employment rates in 2007 that were comparable to those of the Canadian born. However, individuals who received their diploma from Latin America, Asia or Africa had lower employment rates. The authors also separate these groups by specific provinces, such as Quebec and Ontario. They conclude that immigrants in Ontario with a Canadian university degree had employment rates in 2007 that are not much different from those of the Canadian-born Ontarians. However, very recent immigrants in Quebec with Canadian university degrees, like those with Asian or African university degrees also had lower employment rates than Canadian-born Quebecers. All in all, they believe that immigrants who completed their highest level of postsecondary education in Canada have better labour market outcomes than most internationally-educated immigrants.

Mata (2008) uses 2006 Canadian Census data to explore the linkages between the country of postsecondary education completion and the labour market activity of immigrants in Canada aged 25 to 54. Mata points out that those individuals with foreign postsecondary training are less likely to perform well than those trained in Canada. There exists a differential between individuals who were trained in Western educational systems such as in the United States, the United Kingdom, and France, and those trained in non-Western ones such as in China. Mata finds that individuals who completed their postsecondary education in a Western educational system have higher employment rates than individuals who got their diploma from China, Pakistan or South Korea.

Buzdugan and Halli (2009) use the 2002 Ethnic Diversity Survey data to examine the value attributed to foreign education for immigrants based on their duration of stay in Canada. They notice that recent Canadian immigrants have higher education levels but that their earnings

are decreasing; one of the reasons is the devaluation of foreign education and work experience. Their analysis shows that the value attributed to education in the Canadian labour market varies depending on the level of education, but also on the place of education.

Kanas and Tubergen (2009) use the data from the Social Position and Use of Welfare Facilities by Immigrants Survey, (SPVA 1998, 2002) in the Netherlands to estimate the impact of origin and host country schooling on the economic performance of immigrants of four large ethnic minority groups in the Netherlands: Turks, Moroccans, Surinamese and Antilleans. Although they examine a different country, their findings are similar to those of other studies mentioned in this review. They find a lower return to schooling obtained in the origin-country for Turks and Moroccans. Because immigrants acquire skills that are of higher quality and there are no problems of transferability, employers are more certain about such skills and the returns to host-country schooling are higher than those to the origin-country schooling. Their study is consistent with that of Buzdugan and Halli (2009), which indicates that foreign location of study has a negative effect on the immigrants' earnings.

Cao and Fong (2009) use data drawn from a telephone survey conducted in 2005 in Toronto to estimate the effects of foreign education on immigrant earnings. Their results show that the discount on earnings is important among immigrants who received their highest education in foreign countries. In addition, those with foreign education still have lower earnings, even when they come from universities that have high rankings. They point out that it is not because the local employers are not familiar with the foreign university, but because of the foreign university education itself.

Ewoudou (2011) uses 2006 Canadian Census data to evaluate the relationship between location of study and the labour market success of immigrants in Canada and to measure the

earnings differential. He finds that immigrants who completed their higher postsecondary education in the Philippines or in India are considered to be overeducated for the jobs that they do. He also mentions that Canadian-born workers with a postsecondary education have higher employment earnings than immigrants who obtain their diploma in their own countries, especially immigrants who finished postsecondary education in Pakistan, Iran, South Korea or the Russian Federation. Furthermore, the results show that compared to the Canadian-born, immigrants' labour market performance is determined by the origin of their highest postsecondary education. Finally, Ewoudou finds that because of the magnitude of the effect of the location of study on immigrants, Canadian-born workers who received a postsecondary education have an earnings advantage over immigrants. Ewoudou's results are consistent with those of Mata (2008), who used the same data.

In a very recent study, Fortin, Lemieux and Torres (2013) also use the 2006 Canadian Census to investigate the effect of the location of study. Their results show that controlling for the location of study reduces the earning gap between Canadian-born and immigrant workers from around 11% to approximately 3%. The estimations indicate that there is a negative wage premium to education and work experience acquired abroad. Furthermore, education obtained in Asia tends to be less valued than education obtained in South America, Africa and East Europe, while education obtained in those regions is less valued than education obtained in Oceania, the U.S. and the rest of continental Europe. In their estimation, education in the U.K. has an even greater value than its Canadian counterpart. They also find that there is a smaller reduction for education received in South-East Asia and Hong Kong, and that the reduction is sizeable for education received in Pakistan, India, China and the Philippines.

Coulombe, Grenier and Nadeau (2012) use a different approach to analyse human capital quality of immigrants. They use GDP per capita in an immigrant's country of birth as an indicator of the quality of schooling and work experience acquired in that country. This approach is interesting because data on GDP per capita are comparable across countries and are available for most countries in the world for a long time. They find that immigrants' returns to schooling and work experience increase significantly with the GDP per capita of their country of birth. They notice that lower human capital quality negates the advantage completely that immigrants have in the areas of schooling and work experience.

Generally speaking, the literature shows that immigrants who studied in Canada perform better in the Canadian labour market, because the labour market prefers Canadian diplomas. Although some institutions are outstanding in other countries, they do not use English as a first language and do not have a Western education system; this becomes the main barrier to good labour market performance for immigrants. In the rest of this paper, I am going to further study the labour market outcomes of different groups of immigrants based on their country of birth and the location of their studies. In addition to earnings which are analysed in most studies, I will also explore the factors that determine access to a full-time full-year job.

3. Data and Methodology

3.1 Sample

Most Canadian studies on immigration use data from the Census. The Census, done once every five years, is a primary source of information on the demographic, social and economic characteristics of Canadians (Statistics Canada, 2007). In addition, the Census distinguishes between immigrants and native-born Canadians, and it has a large number of respondents. It

takes good account of the characteristics of education, such as the different educational attainments and major field of study. In particular, education location was introduced in 2006. Since educational attainment and location of study of immigrants are the focus of this paper, the data source used is Statistic Canada's 2006 Census of Population.

The sample restrictions of the 2006 Census Public Use micro data are as follows. First, I restrict the age group to 25 to 64 years old. Individuals who are 25 years old are likely to have finished their post-secondary education. Thus, between ages 25 and 64, the individual's main activity is likely to be work, not education. I exclude individuals who are 64 years and over so as to abstract from retirement issues. I also exclude individuals who are self-employed. I make a distinction between individuals who are full-time and full-year workers and those who are not. Full-time means that they work 30 hours or more per week and full-year workers mean that they worked between 49 to 52 weeks during the year prior to the Census. To study wages, the use of full-time and full-year workers is reasonable because their main activity is work. In addition, I only keep individuals who received at least a post-secondary education because the question on location of study was asked only to them. I also drop a small number of immigrants who reported that they were born in Canada. Last but not least, for this study, I only keep immigrants who are from less developed countries and drop the United States and European countries in order to make a sharper comparison of earnings of immigrants and the Canadian-born.

In this paper, I model two dependent variables for immigrants and the Canadian-born: the probability of having a full-time full-year job, and earnings for those who have a full-time full-year job. Table 1 shows the distribution of females and males in the two initial samples.

Table 1 Summary statistics for female and male Canadian-born (immigrants in the initial samples)

	Sample for probability of having a full-time full-year job		Sample for earnings of full-time full-year workers	
	Canadian-born	Immigrants	Canadian-born	Immigrants
Female	52.5%	53.6%	45.8%	45.0%
Male	47.5%	46.4%	54.2%	55.0%
Sample size	182,069	32,429	103,165	14,829
Whole sample size	214,498		117,994	
Total female sample size	113,017		53,879	
Total male sample size	101,481		64,115	

Source: calculations based on 2006 Census of Canada public use microdata

For the probability of getting full-time full-year jobs, the sample size is larger, at 214,498, because this sample includes individuals with zero wage and others who worked part-time or only part of the year; there are 182,069 Canadian-born individuals and 32,429 immigrants. For full-time full-year workers, the sample size is restricted to 117,994, with 103,165 born in Canada and 14,829 immigrants.

The first analysis is of the probability of getting a full-time full-year job for immigrants and the Canadian-born, and the second analysis is of earnings. For the two analyses to be consistent, I dropped individuals who reported being full-time full-year workers while declaring zero wages. In addition, for both analyses, as the United States and Europe have a relatively advanced education system which is similar to the one in Canada, I dropped immigrants from those regions in order to focus only on the location of studies in the less developed countries for my regressions. Thus, this narrows the sample size of the first model to 113,017 for females and 101,481 for males. The second analysis focuses on earning differentials between full-time full-year native-born individuals and immigrants who studied inside and outside Canada. For this regression, I dropped the outliers who reported wages less than \$500 and more than \$200,000 which narrows the sample size to 53,879 for females and 64,115 for males.

3.2 Variables

The first analysis is a binary choice model of the probability of immigrants and the Canadian-born getting a full-time full-year job and the dependent variable is the dummy variable that takes the value one for those with a full-time full-year job and the value zero otherwise. The second analysis is an earnings regression for full-time full-year workers and considering whether immigrants are studied outside or in Canada. The dependent variable is the log of annual wages.

The following six main categories define the independent variables: geographic, demographic, immigration, language ability, labour market activity and human capital. For the geographic variables, I use province in my estimation. I separate provinces into 6 groups based on where the respondents live. Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick constitute the Atlantic Provinces. Manitoba and Saskatchewan constitute the Prairies, while the other provinces of Quebec, Ontario, Alberta and British Columbia enter individually. I choose Ontario as the reference group.

The demographic factors include age, marital status and sex. For the age variable, I use the mid-point of each five-year age group in the codebook of the public use data. The age variable, along with the years of schooling, is also used to define work experience. For marital status, I generate a dummy variable equal to 1 for people who are married or living common in law, and equal to 0 otherwise.

The immigration variables include immigration status, place of birth and years since migration. I use the place of birth in relation to the location of study. Place of birth is a set of dummy variables consisting of 11 categories, with Canada being set as the reference group: Jamaica, Caribbean and Bermuda, South America, Africa, West central Asia and the Middle East, China, Hong Kong, the Philippines, India and Other Asia and Oceania. All those places of

birth are interacted with a dummy variable indicating that the location of study is not Canada. The location of studies variables is based on a question in the census that asks in which country a person receive his or her highest degree. Note that the location of study information in the data is more aggregated than the place of birth information. It seems reasonable to assume that in most cases, those who did not study in Canada studied in their country of birth. These variables provide more detailed information on the effects of the different places where immigrants have acquired their degrees on the outcomes of immigrants in the Canadian labour market.

In my regressions, the *years since migration* variable is defined as actual years since migration *minus 10 years*. This transformation does not change the slope coefficient with respect to years since migration, but the effects of the place of birth dummy variables are now evaluated after 10 years in Canada rather than at the time of entry. Given that the focus is on location of study, it makes more sense to estimate the performance of immigrants after 10 years in order for them to have enough time to be able to study in Canada.

For language ability, I create a dummy variable for the knowledge of official languages, which is equal to 0 if individuals know either English or French or both of the languages, while it is equal to 1 if they know neither of these languages. For labour market activity variables, I use the work activity in 2005. I generate a sample of people who work full-time full-year if they worked 49-52 weeks mainly full time during the previous year.

The human capital variables include education and experience. For education, I use the highest certificate, diploma or degree and the location of study. As already mentioned, I include only people whose education level is higher than secondary to help me estimate the earnings differential between immigrants who studied inside and outside Canada. Following Grenier and Nadeau (2011), I generate the number of years of schooling based on an estimate of how many

years in takes individuals to finish their different degrees. Appendix Table A1 shows the corresponding years of schooling. Table 2 shows the summary statistics of the average years of schooling in both models by gender.

Table 2 Average years of schooling for females and males

	Sample for probability of getting a full-time full-year job				Samples for earnings of full-time full-year workers			
	Canadian-born	Sample size	Immigrants	Sample size	Canadian-born	Sample size	Immigrants	Sample size
Female	14.9	95,635	15.3	17,382	14.9	47,208	15.3	6,671
Male	14.5	86,434	15.5	15,047	14.6	55,957	15.5	8,158

Source: calculations based on 2006 Census of Canada public use microdata

This table presents the average years of schooling for immigrants and the Canadian-born for both samples. Obviously, all the groups' years of schooling are almost 15 years. For Canadian-born females, the average years of schooling are slightly less than those of immigrant females in both samples. Meanwhile, for Canadian-born males, the average years of schooling are almost one year less than those of immigrant males. In addition, for the Canadian-born, the average number of years of schooling for females is slightly higher than that of males, while for immigrants, the females' average years of schooling are slightly lower than for males in both samples.

Potential work experience is equal to *age minus years of schooling minus 6*. The variable "experience squared" is introduced to allow for the possibility that as experience increases; the increase in the wage diminishes over time. The relationship between years of schooling, work experience, work experience squared and the log of wages constitutes the basic human capital earnings function.

3.3 Descriptive statistics

Given the main focus of this study, Table 3 shows the proportion of immigrants who received their highest degree outside Canada among all the immigrants from a given place of birth, respectively for all individuals and full-time full-year workers and for females and males.

Table 3 Proportion of immigrants who studied outside Canada, by place of birth

	All individuals				Full-time full-year workers			
	Female		Male		Female		Male	
Place of Birth	Proportion	Observations	Proportion	Observations	Proportion	Observations	Proportion	Observations
Jamaica	0.150	778	0.219	433	0.175	383	0.215	260
Other Caribbean and Bermuda	0.174	1,136	0.225	786	0.152	500	0.206	462
South America	0.417	1,235	0.412	1,000	0.319	524	0.347	602
Africa	0.461	1,676	0.482	1,812	0.366	606	0.416	909
West Central Asia and the Middle East	0.572	1,394	0.529	1,328	0.441	442	0.442	613
China	0.710	2,029	0.692	1,882	0.621	667	0.651	911
Hong Kong	0.296	1,145	0.260	1,084	0.236	550	0.216	695
Philippines	0.744	2,373	0.738	1,380	0.724	1,101	0.718	792
India	0.755	1,934	0.718	1,877	0.702	732	0.691	1,096
Other Asia and Oceania	0.546	3,219	0.508	3,112	0.362	1,015	0.434	1,594

Notes: The observations columns refer to the number of people who were born in different countries

Source: calculations based on 2006 Census of Canada public use microdata

In both samples, immigrants from Jamaica, Other Caribbean and Bermuda, and Hong Kong are those with the lowest shares who have studied outside Canada. For example, among the full-time full-year female workers, those shares are 17.5%, 15.2% and 23.6% respectively. At the other extreme, immigrant females born in China, the Philippines and India have the largest shares who have studied outside Canada, at 62.1%, 72.4% and 70.2% respectively. For male workers, the results are similar to those of females in terms of the countries with the lowest and

largest shares. Comparing them all, the proportions studying outside Canada are higher for male than for female full-time full-year workers in most countries, but there are exceptions. For example, for Hong Kong, the Philippines and India, females have higher proportions, 23.6%, 72.4%, and 70.2%. For the sample that includes all individuals, the results are similar. When comparing the proportions for all individuals to those of full-time full-year workers, I notice that the proportions are higher for the all individuals sample, which means that those who study outside Canada are less likely to have full-time full-year jobs. However, for Jamaica, there is still an exception: the proportions for all individuals are slightly lower than those for the full-time full-year workers for both females and males.

Table 4 shows the proportions having a full-time full-year job for different characteristics and Appendix Table A2 also provides the mean values of the variables for that sample. Looking at Table 4, males have a higher probability of having a full-time full-year job, at 15.5 percentage points more than females. Canadian-born individuals also have a higher probability of having a full-time full-year job, at 11 percentage points more than immigrants. For immigrants who studied in Canada, the probability is 13 percentage points higher than for immigrants who studied outside Canada. I also notice that married individuals have a higher percentage getting a full-time full-year job, which is 3.6 percentage points higher than that of not married people.

Table 4 Proportions having a full-time full-year job for various characteristics

	Mean	Observations
Female	0.477	113,017
Male	0.632	101,481
Immigrants	0.457	32,429
Canadian-born	0.567	182,069
Married individuals	0.560	152,656
Not stay in married individuals	0.524	61,842
Immigrants who studied outside Canada	0.397	17,346
Immigrants who studied inside Canada	0.527	15,083
Female immigrants who studied outside Canada	0.321	9,389
Female immigrants who studied inside Canada	0.458	7,993
Male immigrants who studied outside Canada	0.486	7,957
Male immigrants who studied inside Canada	0.605	7,090
Married female immigrants who studied outside Canada	0.309	7,892
Married female immigrants who studied inside Canada	0.456	5,128
Married male immigrants who studied outside Canada	0.498	7,017
Married male immigrants who studied inside Canada	0.650	4,929

Source: calculations based on 2006 Census of Canada public use microdata

Table 5 presents a similar analysis for the average log of wage of people who worked full-time full-year by various characteristics. Appendix Table A3 also provides the mean values of the variables for that sample. From Table 5, we can see that males earn about 24.5% more than female while Canadian-born earn 14.3% more than immigrants. Among the immigrants,

individuals who studied outside Canada earn 17.7% less than those who studied in Canada.

Married individuals earn 15.9% more than not married individuals.

Table 5 Average log of wages for various characteristics

	Mean	Observations
Female	10.599	53,879
Male	10.844	64,115
Immigrants	10.607	14,829
Canadian-born	10.750	103,165
Married individuals	10.776	85,558
Not stay in married individuals	10.617	32,436
Immigrants who studied outside Canada	10.512	6,881
Immigrants who studied inside Canada	10.689	7,948
Female immigrants who studied outside Canada	10.379	3,010
Female immigrants who studied inside Canada	10.586	3,661
Male immigrants who studied outside Canada	10.616	3,871
Male immigrants who studied inside Canada	10.778	4,287
Married female immigrants who studied outside Canada	10.369	2,438
Married female immigrants who studied inside Canada	10.617	2,338
Married male immigrants who studied outside Canada	10.631	3,496
Married male immigrants who studied inside Canada	10.834	3,204

Source: calculations based on 2006 Census of Canada public use microdata

To conclude, the above summary statistics show that on average, females tend to earn less and are less likely to work full-time full-year than males. Married people earn more than

unmarried ones and have a higher probability of having a full-time full-year job. Both male and female immigrants also earn less and have a lower probability of having a full-time full-year job than Canadian-born individuals. Finally, immigrants who got a foreign diploma tend to earn less and to work full-time full-year than the immigrants who studied in Canada.

3.4 Econometric Model

For each of my two outcome variables, a dummy variable and the log of wage, I estimate a linear regression model. There are two outcomes for my regressions: the probability of having a full-time full-year job, and the log of wages. The regression model can be written as:

$$Outcome_i = X_i\gamma + \sum_{j=1}^k (\beta_j Country_j + \delta_j Country_j^{out}) + \theta_i YSM10$$

where $Outcome_i$ is one of the two outcomes just defined, X_i is a vector of independent variables that are common to Canadian-born and immigrants; it includes years of schooling, work experience, work experience squared, marital status, language abilities and different provinces of residence. Those variables were defined in Section 3.2. The immigrant specific variables include $Country_j$, a set of dummy variables for the different places of birth (with birth in Canada as the reference category), and $Country_j^{out}$, an interaction of country of birth with an indicator taking the value of one for receiving a diploma outside Canada and the value zero otherwise. The number of countries is k . The variable $YSM10$ is the number of years since migration minus 10 years. As mentioned earlier, this transformation does not change the coefficient of that variable, but the coefficients of the dummy variables for countries of birth will capture the wage gap after 10 years in Canada instead of at entry. Those gaps are for immigrants who studied in Canada. The location of study interaction variables give the additional gaps for

having studied outside Canada. The next section presents the analysis of the results of these two regressions.

4. Regression Analysis

4.1 Outcome 1: Access to a full-time full-year job

This regression analyses the probability of getting a full-time full-year job for Canadian-born individuals and immigrants from different places of birth and locations of study. Since the dependent variable of this model is a dummy variable, the ordinary least squares regression may exhibit some heteroscedasticity. In order to account for this problem, I use standard errors that are robust to heteroscedasticity. I also estimated with a probit model and the results are similar. Therefore, only the ordinary least square results are presented. In general, immigrants who studied in Canada are expected to have a higher probability of having a full-time full-year job than immigrants who studied outside Canada.

Table A4 in the Appendix shows the complete regression results and Table 6 below shows the coefficients of the place of birth and location of study variables, which are the focus of this study.

In terms of the geographic variables, Table A4 shows that females have the lowest probability of getting a full-time full-year job in British Columbia, with a probability 7.2 percentage points lower than that of Ontario. Meanwhile, males bear the lowest probability of getting a full-time full-year job in the Atlantic Provinces, at 12.5 percentage points lower than Ontario. However, the coefficient of the Prairies Provinces variable is not significant for females while the coefficient of the Alberta variable is not significant for males.

With respect to the socio-demographic variables, experience and experience squared both have significant effects on the probability of getting a full-time full-year job for males and females. The positive experience effect decreases through time since the coefficient of experience squared is negative. Married females have a lower probability of having a full-time full-year job, while the opposite is true for males. This is consistent with the standard conventions of the division of labour within the household.

For the immigration variables, the estimated coefficients of years since migration are similar for both gender groups. The positive values indicate that each additional year in Canada leads to a higher probability of having a full-time full-year job. More specifically, one more year in Canada increases the probability by 0.8 percentage points for females and 0.9 percentage points for males.

The next variable is language ability. In general, people who know English or French find it much easier to access a full-time full-year job in Canada. For females, not knowing English or French leads to a decrease of 11.8 percentage points in the probability of getting a full-time full-year job, while for males, this decrease is 16.2 percentage points.

The estimated coefficients of years of schooling are significant for both genders. For females, an additional year of schooling increases the probability of having a full-time full-year job by 2 percentage points; the effect is smaller for males, at 0.7 percentage points. Clearly, having more years of schooling benefits females more than males.

Table 6 Regression results on the probability of having full-time full-year job of different place of birth and locations of study (robust standard errors in parentheses)

Countries <i>(less developed countries)</i>	Place of Birth <i>(Born in Canada as reference group)</i>		Locations of Study <i>(Immigrants who studied inside Canada as reference group)</i>	
	Regression coefficients		Regression coefficients	
	Female	Male	Female	Male
Jamaica	-0.145*** (0.020)	-0.208*** (0.027)	0.163*** (0.050)	0.087 (0.055)
Other Caribbean and Bermuda	-0.154*** (0.017)	-0.170*** (0.021)	0.026 (0.038)	0.011 (0.042)
South America	-0.118*** (0.019)	-0.135*** (0.020)	-0.068** (0.028)	-0.043 (0.031)
Africa	-0.163*** (0.017)	-0.183*** (0.016)	-0.057** (0.023)	-0.058*** (0.023)
West Central Asia and the Middle East	-0.180*** (0.020)	-0.187*** (0.020)	-0.096*** (0.025)	-0.108*** (0.027)
China	-0.114*** (0.020)	-0.202*** (0.021)	-0.074*** (0.023)	-0.033 (0.025)
Hong Kong	-0.078*** (0.018)	-0.104*** (0.017)	-0.043 (0.031)	-0.067** (0.033)
Philippines	-0.058*** (0.021)	-0.165*** (0.026)	-0.024 (0.023)	-0.007 (0.030)
India	-0.135*** (0.023)	-0.163*** (0.022)	-0.029 (0.026)	-0.003 (0.025)
Other Asia, Oceania and others	-0.134*** (0.014)	-0.179*** (0.013)	-0.151*** (0.017)	-0.093*** (0.018)
Observations	113,107	101,481	113,107	101,481

Notes: Robust standard errors are in the brackets. * significant at 10%. ** significant at 5%. *** significant at 1%. Other control variables include years of schooling, working experience, working experience squared, marital status, province of residence, knowledge of official language and years since migration. The complete regression results are in Appendix Table A4.

Source: calculations based on 2006 Census of Canada public use microdata.

Table 6 presents the regression coefficients of the same model for place of birth and location of study. The first two columns show the gaps after 10 years in Canada for immigrants from various places of birth who studied in Canada. The second two columns show for each place of birth the additional gap that is due to having received a highest degree outside Canada. The coefficients of the first two columns are all negative and statistically significant. Female immigrants born in West Central Asia and the Middle East bear the lowest probability of getting a full-time full-year job, at 17.9 percentage points less after 10 years in Canada than females

born in Canada. In contrast, immigrant females from Hong Kong and the Philippines have a much lower disadvantage in the likelihood of getting a full-time full-year job, at only 7.8 and 5.8 percentage points respectively less than Canadian-born women. The other less developed countries, such as Jamaica, Caribbean and Bermuda, South America, Africa, China, India, other Asia and Oceania all have important disadvantages compared to Canadian-born women. This is true even if they studied in Canada.

For all places of birth, the gaps in the probability of getting a full-time full-year job are larger for males than for females. Males from Jamaica bear the lowest probability, at 20.8 percentage points less than that of the Canadian-born. In addition, some countries that do not use English as first language also have high disadvantages, such as West Central Asia and the Middle East and China, whose probabilities are 18.7 and 20.2 percentage points lower than those of Canadian-born workers. Again, Hong Kong has a relatively lower gap of 10.4 percentage points, which is similar to the one for females, but the gap for the males from the Philippines is larger compared to the one for females.

Location of study is a potential additional reason for reduced access to a full-time full-year job for immigrants. For immigrants who studied outside Canada, the Canadian labour market may be less likely to offer a good job because employers may not be familiar with foreign education institutions. The last two columns of Table 6 present estimated coefficients of the location of study variables, which measure the effect on the probability of employment of studying outside Canada.

As expected, the regression coefficients are generally negative, but there are exceptions and many negative coefficients are not statistically significant. For female immigrants born in Jamaica, I surprisingly find that those who obtained their diploma outside Canada have a 16.3

percentage point higher probability of having a full-time full-year job than those who studied in Canada. This result is also statistically significant. This may be because Jamaica uses a British education system. However, as mentioned in Table 3, there is a very small proportion of individuals who studied outside Canada: 15% and 21.9% for females and males respectively for all individuals, and 17.5% and 21.5% for full-time full-year workers.

In addition, female immigrants who obtained their diplomas from other Caribbean and Bermuda, Hong Kong, the Philippines and India all have estimated coefficients which are not statistically significant, indicating that location of study makes no difference for them. Among the significant negative coefficients, female immigrants who obtained credentials from Other Asia and Oceania have the lowest probability of getting a full-time full-year job, at 15.1 percentage points less than those who studied inside Canada. Female immigrants who studied in Africa, in West Central Asia and the Middle East, and in China are also penalized by their location of study.

For male immigrants who studied in Jamaica, other Caribbean and Bermuda, South America, China, Philippines and India, the coefficients are insignificant, suggesting again no difference between immigrants who studied inside Canada and outside. Among the significant coefficients, male immigrants who obtained their diploma in West Central Asia and the Middle East have the lowest probability of having a full-time full-year job, at 10.8 percentage points less than immigrants who obtained their diplomas in Canada. Furthermore, male immigrants who studied in Africa have a relatively higher likelihood of having a full-time full-year job and this result is similar to that for females. But when compared to immigrants who studied inside Canada, there is still a 5.8 percentage point disadvantage for immigrants who obtained diplomas in Africa.

To conclude, the main findings of this analysis are: 1) People with more years of schooling have a higher probability of having a full-time full-year job. 2) Married females have a lower probability of having a full-time full-year job than married males, 3) The likelihood of working full-time full-year for females and males increases with years spent in Canada. 4) Immigrants who know English or French have higher probability of having a full-time full-year job. 5) Canadian-born workers have higher probability of having a full-time full-year job than immigrants. 6) Immigrants who studied inside Canada have higher probability of having a full-time full-year job than immigrants who studied outside Canada, but only for some places of birth.

4.2 Outcome 2: Wages regressions

Table A5 in the Appendix shows the complete wage regression results by gender for individuals who worked full-time full-year. The coefficient of years of schooling is 0.140 for females and 0.077 for males. Females get higher returns to schooling than males. This result is consistent with the literature that I surveyed earlier. In terms of the geographic variables, both males and females have lower wages in the Atlantic Provinces when compared to the reference group of Ontario. Compared to the other regions, the Atlantic Provinces have the lowest wage level.

With respect to the socio-demographic variables, experience and experience squared are both significant determinants of the wage levels for females and males. People who have more working experience tend to earn more. The results show that females receive a 4.1% return per year of experience while males receive a 4.3% return. As expected, the positive experience effect decreases through time since the coefficients of experience squared are negative. There is a

positive effect on wages when males are married, but married females receive lower wages than single ones.

In terms of the effect of the number of years since migration, the estimated coefficient is similar for both groups: at 0.011 for female and 0.010 for male. These positive values indicate that additional years in Canada increase the wage by about one percent.

The estimated coefficients of not knowing the official languages for both females and males are significantly negative. My results show that females who do not speak either official languages earn 28.1% less than females who know English or French while males who do not speak either official languages earn 31.9% less than those who know English or French. This indicates that having the ability to speak an official language benefits female than males. The results are significant, which means that language ability is important to immigrants' career performance.

This study focuses on place of birth, where I set Canadian-born workers as the reference group. Table 7 shows the regression results on different places of birth and on the locations of study.

Table 7 Wage regression results for places of birth and locations of study

Countries <i>(less developed countries)</i>	Place of Birth <i>(Born in Canada as reference group)</i>		Location of study <i>(Immigrants who studied inside Canada as reference group)</i>	
	Regression coefficients		Regression coefficients	
	Female	Male	Female	Male
Jamaica	-0.234*** (0.033)	-0.322*** (0.042)	0.004 (0.074)	0.029 (0.088)
Other Caribbean and Bermuda	-0.225*** (0.029)	-0.320*** (0.032)	-0.255*** (0.068)	-0.111* (0.067)
South America	-0.222*** (0.031)	-0.283*** (0.031)	-0.141*** (0.052)	-0.037 (0.051)
Africa	-0.216*** (0.029)	-0.260*** (0.026)	-0.057 (0.047)	-0.099** (0.040)

West Central Asia and the Middle East	-0.252*** (0.036)	-0.339*** (0.032)	-0.165*** (0.054)	-0.158*** (0.047)
China	-0.191*** (0.035)	-0.365*** (0.020)	-0.255*** (0.044)	-0.100** (0.041)
Hong Kong	-0.167*** (0.028)	-0.184*** (0.033)	-0.023 (0.055)	-0.198*** (0.054)
Philippines	-0.179*** (0.032)	-0.241*** (0.040)	-0.230*** (0.037)	-0.232*** (0.046)
India	-0.206*** (0.038)	-0.266*** (0.033)	-0.370*** (0.045)	-0.171*** (0.040)
Other Asia, Oceania and others	-0.195*** (0.023)	-0.258*** (0.021)	-0.342*** (0.036)	-0.219*** (0.030)
Observations	53,879	64,115	53,879	64,115

Notes: Standard errors are in the brackets. * significant at 10%. ** significant at 5%. *** significant at 1%. Other controlled variables include years of schooling, working experience, working experience squared, marital status, province of residence, knowledge of official language and years since migration. The complete regression results are in Appendix Table A5.

Source: calculations based on 2006 Census of Canada public use microdata.

As in the previous model, all the coefficients for place of birth are statistically significant, indicating that, after 10 years in Canada, immigrants from all the less developed countries are penalized both in terms of access to employment and in term of wages, even if they studied in Canada. Female immigrants born in West Central Asia and in the Middle East have the lowest earnings among all the female immigrants, at 25.2% less than those of the Canadian-born. At the other extreme, female immigrants from Hong Kong have earnings which are only 16.7% less than those of the Canadian-born. Interestingly, this result for Hong Kong is similar to the previous regression, which is that immigrants who were born in Hong Kong also have a relatively better chance of having a full-time full-year job. This can be related to the fact that Hong Kong also uses English as an official language. Women born in Jamaica have 23.4% lower earnings than people born in Canada while people born in other Caribbean and Bermuda, South America, Africa, China, the Philippines, India and other Asia, Oceania have respectively 22.5%, 22.2%, 21.6%, 19.1% lower earnings than comparable Canadian-born women. In addition, when compared to Table 6, women born in Jamaica and West Central Asia and the Middle East have the largest disadvantages in both having a full-time full-year job and in earnings. At the same

time, immigrants who were born in Other Asia and Oceania have relatively larger disadvantages in having a full-time full-year job and in earnings.

Male immigrants also have negative coefficients for all countries, which mean that they also earn less than the Canadian-born. As in the previous model, the negative coefficients for all the places of birth are larger for male immigrants than for female immigrants. Male immigrants born in China have the lowest earnings, at 36.5% less than the Canadian-born. In contrast, male immigrants born in Hong Kong have earnings which are only 18.4% less than those for the Canadian-born. This is similar to the result for females, and also consistent with the study done by Meng (1987) and Bloom and Gunderson (1991) which mention that immigrants earn less than the native-born. Meanwhile, Picot, Hou and Coulombe (2007) also obtained similar results in that immigrants with higher education level still have lower entry income. Similarly, Fortin, Lemieux and Torres (2013) calculate that a bachelor's degree obtained in any of the new areas of origin would lead to a negative wage gap of about 33% to 22% for the newcomer, while a bachelor's degree obtained in the West would only have a negative wage gap of about 2%.

Some immigrants obtain credentials in Canada, while others finish their study in their countries of origin before migrating to Canada. The last two columns of Table 7 also present the regression results with respect to locations of study; these places are the same as the places of birth that I provided above, and this table shows the earning differential between immigrants who got their highest diploma outside Canada and immigrants who got their diplomas from Canadian institutions.

The only positive coefficient occurs for Jamaica for both females and males, but it is not significant. This is similar to the previous regression. It indicates that Jamaicans are not penalized for studying outside Canada. For females, all the other coefficients indicate that

immigrants who studied outside Canada earn less than immigrants from the same country who studied in Canada. Compared with the other model, there are more statistically significant negative coefficients here than in the other regression. This suggests that foreign location of study has more impact on earnings than on access to work. This is also true for male immigrants.

With the exception of Jamaica, other less developed countries have an additional wage penalty for studying outside Canada. For females from the South America and Africa areas, the additional penalty is small relative to that of other countries, at 14.1% and 5.7% less than those who studied in Canada. However, for the India and Other Asia and Oceania areas, there are large additional penalties of 37.0% and 34.2% respectively. Male immigrants who studied in South America and Africa have the smallest penalties, at 3.7% and 9.9%. This is similar to the results for female immigrants. For male immigrants who studied in the Philippines and in the Other Asia and Oceania areas, there are larger penalties, at 23.3% and 17.1% respectively.

My results can be compared to those of the literature that I surveyed above. Li (2001), with 1996 Census data, also finds that there is a clear earnings disadvantage for immigrant who studied in their home country. Mata (2008), Ewoudou (2011) and Fortin, Lemieux and Torres (2013) all use the 2006 Canadian Census data and find that Canadian-born who received a postsecondary education have higher employment earnings than the immigrants who get their diploma at their own countries. Specifically, Fortin, Lemieux and Torres (2013) use the coefficients of the location of study dummies to graph the average negative effects of obtaining an educational degree from particular countries in comparison to Canada (See their Figure 1). They find that India and China rank low in terms of location of study effects, which means that there are few advantages to study in those areas. This is similar to my results. They likewise find, like I do, that diplomas from Africa and South America are less penalized. Ewoudou also finds

that there exists a 39% of earning disadvantage for immigrants who a degree in China. Clearly, location of study plays an important role on the earning of immigrants. The Canadian labour market prefers Canadian diplomas to diplomas obtained from other countries. This may explain why many immigrants choose to finish their higher education in Canadian universities in order to get a respected job with a decent wage.

To summarize, the main findings of this analysis are: 1) Individuals with more years of schooling have higher earnings 2) Immigrants and Canadian-born workers living in the Atlantic Provinces have lower earnings than those who live in other provinces of Canada. 3) Married females experience lower earnings than married males. 4) Workers who know the official language are earning more than those who do not know the official languages. 5) Immigrants from all countries of birth earn less than the Canadian-born after 10 years in Canada, even if they studied in Canada. 6) Immigrants who obtained credentials in their countries of origin earn less than those who obtained credentials inside Canada; there are exceptions for some places of birth, but compared to the previous model on the probability of having a full-time full-year job, foreign education has a more important impact on earnings than on access to a full-time full-year job.

5. Summary and Conclusion

I used the 2006 Canadian Census public use microdata to assess the factors that are the most likely to affect the earning differentials and the probability of working full-time full-year for highly educated immigrants (those who obtain college certificate or higher) from the less developed countries. Two different indicators were used: the probability of getting a full-time full-year job, and earnings. The explanatory factors included years of schooling, marital status, experience, gender, provinces of residence, knowledge of official languages, place of birth, years since migration, and location of study. The main findings are summarized as follows.

First, both immigrants and the Canadian-born have a higher probability of having a full-time full-year job and earn more if they have received more years of schooling. This is to be expected since the labour market prefers highly skilled workers. This result is consistent with the literature.

Second, for both the Canadian-born and immigrants, married females have a lower probability of having a full-time full-year job than unmarried females, and they also have lower earnings. This may be because married females have less time to allocate to work; instead, they pay more attention to take care of children. Males, on the other hand, are perhaps more ambitious about their career, and want to earn more to support their family.

Third, workers who know at least one official language have a higher probability of having a full-time full-year job and earn more. The result is the same for both males and females, but females benefit more if they know an official language.

Fourth, the province of residence has a significant effect on the determination of the probability of having a full-time full-year job and of earnings. With Ontario as the reference group, the relatively less wealthy provinces have a lower probability of having a full-time full-year job and lower earnings for both females and males.

Fifth, as the focus of this study is on immigrants, I find that both female and male immigrants benefit if they spend more time in Canada. As expected, the coefficients of years since migration are positive for males and females in both regressions, which indicates that the time spent since landing helps immigrants overcome initial difficulties, and it also means that their situation will improve the longer they stay in Canada. Thus, the probability of having a full-time full-year job and earnings keep increasing.

Sixth, immigrants from all the less developed countries have a lower probability of having a full-time full-year job than the Canadian-born. The results show that both female and male immigrants earn less than the Canadian-born. In addition, immigrants have lower earnings than the Canadian-born if they worked full-time full-year for the same reason.

Seventh, I use the place of birth to interact with study outside Canada. I find that immigrants who studied in Canada have a higher probability of having a full-time full-year job than immigrants who studied outside Canada, and immigrants who studied outside Canada earn less than immigrants who studied in Canada if they work full-time full-year. This is also because of the credential that they get and the language that they use. People who studied outside Canada may have less knowledge of English or French. Thus, the Canadian labour market will offer more job opportunities to immigrants who studied in Canada.

The general conclusion of this paper is that studying outside Canada brings negative outcomes. But there are some countries that are worse than others for these two outcomes. Females who were born in West Central Asia and the Middle East and males who were born in Jamaica have the largest disadvantage in accessing a full-time full-year job. In addition, for females and males, people born in Other Asia and Oceania and who studied outside Canada have the largest additional penalty in accessing a full-time full-year job. For the wage regressions, female immigrants who were born in West Central Asia and the Middle East have lower earnings when compared to other countries, while male immigrants who were born in China have a large disadvantage in earnings when compared to those from other areas. Again, female immigrants who were born in India and male immigrants who were born in the Philippines but studied outside Canada face larger earnings penalties when compared to immigrants who studied in Canada.

However, there are some interesting exceptions. Female immigrants who studied in Jamaica have a higher probability of having a full-time full-year job than Jamaican immigrants who studied in Canada, and this result is also statistically significant, perhaps because Jamaica has a British education system. I also notice that the literature that I surveyed earlier did not mention this specific result for Jamaica.

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Appendix

Table A1 Construction of number of years of schooling variable based on the highest degree

Highest certificate, degree or diploma obtained	Estimated years of schooling
Trade, apprenticeship, college or CEGEP certificates or diploma from a program of three months to less than one year	13
Trade, apprenticeship, college or CEGEP certificates or diploma from a program of one year to two years	14
University certificate or diploma below bachelor level	15
University bachelor level	16
University certificate or diploma above bachelor level	17
Masters	18
Doctorate (including medicine, dentistry and similar programs)	22

Note: based on Grenier and Nadeau (2011)

Table A2 Mean values of variables for the probability of getting a full-time full-year job regression, whole sample by gender

	Mean	
	Female	Male
Proportion having a full-time full-year job	0.477	0.632
Years of schooling	14.817	14.674
Working experience	21.519	22.334
Working experience square	579.366	614.541
Marital status	0.700	0.725
Province of residence (<i>Ontario as reference group</i>)		
Atlantic Provinces (<i>Newfoundland, Prince Edward island, Nova Scotia and New Brunswick</i>)	0.078	0.076
Québec	0.264	0.279
Prairies Provinces (<i>Manitoba and Saskatchewan</i>)	0.060	0.055
Alberta	0.100	0.107
British Columbia	0.127	0.124
Place of Birth		
Jamaica	0.007	0.004
Other Caribbean and Bermuda	0.010	0.007
South America	0.011	0.010
Africa	0.015	0.018
West Central Asia and the Middle East	0.012	0.013
China	0.018	0.019
Hong Kong	0.010	0.011
Philippines	0.021	0.014
India	0.017	0.018
Other Asia, Oceania and others	0.028	0.031
Studied outside Canada		

Jamaica	0.001	0.001
Other Caribbean and Bermuda	0.002	0.002
South America	0.005	0.004
Africa	0.007	0.009
West Central Asia and the Middle East	0.007	0.007
China	0.013	0.013
Hong Kong	0.003	0.003
Philippines	0.016	0.010
India	0.013	0.013
Other Asia, Oceania and others	0.016	0.016
Knowledge of official language <i>(English/French/both as reference group)</i>		
Neither English nor French	0.004	0.003
Years since migration minus 10 years	0.676	0.693
Observations	113,017	101,481

Source: calculations based on 2006 Census of Canada public use microdata

Table A3 Mean values of variables for the wage sample, by gender

	Mean	
	Female	Male
Log of wages	10.600	10.844
Years of schooling	14.904	14.704
Working experience	20.650	21.576
Working experience square	524.541	564.578
Marital status	0.677	0.765
Province of residence <i>(Ontario as reference group)</i>		
Atlantic Provinces <i>(Newfoundland, Prince Edward island, Nova Scotia and New Brunswick)</i>	0.080	0.069
Québec	0.265	0.261
Prairies Provinces <i>(Manitoba and Saskatchewan)</i>	0.064	0.060
Alberta	0.100	0.116
British Columbia	0.109	0.115
Place of Birth		
Jamaica	0.007	0.004
Other Caribbean and Bermuda	0.009	0.007
South America	0.010	0.009
Africa	0.011	0.014
West Central Asia and the Middle East	0.008	0.010
China	0.012	0.014
Hong Kong	0.010	0.011
Philippines	0.020	0.012
India	0.014	0.017
Other Asia, Oceania and others	0.019	0.025
Studied outside Canada		
Jamaica	0.001	0.001
Other Caribbean and Bermuda	0.001	0.001

South America	0.003	0.003
Africa	0.004	0.006
West Central Asia and the Middle East	0.003	0.004
China	0.008	0.009
Hong Kong	0.002	0.002
Philippines	0.015	0.009
India	0.010	0.012
Other Asia, Oceania and others	0.007	0.011
Knowledge of official language <i>(English/French/both as reference group)</i>		
Neither English nor French	0.001	0.001
Years since migration minus 10 years	0.855	0.817
Observations	53,879	64,115

Source: calculations based on 2006 Census of Canada public use microdata

Table A4 Regressions on the probability of getting a full-time full-year job, by gender
(robust standard errors in parentheses)

	Female	Male
Years of schooling	0.020*** (0.001)	0.007*** (0.001)
Working experience	0.025*** (0.001)	0.027*** (0.001)
Working experience square	-0.001*** (0.000)	-0.001*** (0.000)
Marital status	-0.053*** (0.003)	0.142*** (0.003)
Province of residence (Ontario as reference group)		
Atlantic Provinces (Newfoundland, Prince Edward island, Nova Scotia and New Brunswick)	-0.016*** (0.006)	-0.125*** (0.006)
Québec	-0.022*** (0.004)	-0.085*** (0.004)
Prairies Provinces (Manitoba and Saskatchewan)	0.005 (0.006)	-0.016** (0.007)
Alberta	-0.030*** (0.005)	-0.003 (0.005)
British Columbia	-0.072*** (0.005)	-0.075*** (0.005)
Place of Birth		
Jamaica	-0.145*** (0.020)	-0.208*** (0.027)
Other Caribbean and Bermuda	-0.154*** (0.017)	-0.170*** (0.021)
South America	-0.118*** (0.019)	-0.135*** (0.020)
Africa	-0.163*** (0.017)	-0.183*** (0.016)
West Central Asia and the Middle East	-0.180*** (0.020)	-0.187*** (0.020)
China	-0.114*** (0.020)	-0.202*** (0.021)
Hong Kong	-0.078*** (0.018)	-0.104*** (0.017)
Philippines	-0.058*** (0.021)	-0.165*** (0.026)

India	-0.135*** (0.023)	-0.163*** (0.022)
Other Asia, Oceania and others	-0.134*** (0.014)	-0.179*** (0.013)
Studied outside Canada		
Jamaica	0.163*** (0.050)	0.087 (0.055)
Other Caribbean and Bermuda	0.026 (0.038)	0.011 (0.042)
South America	-0.068** (0.028)	-0.043 (0.031)
Africa	-0.057** (0.023)	-0.058*** (0.023)
West Central Asia and the Middle East	-0.096*** (0.025)	-0.108*** (0.027)
China	-0.074*** (0.023)	-0.033 (0.025)
Hong Kong	-0.043 (0.031)	-0.067** (0.033)
Philippines	-0.024 (0.023)	-0.007 (0.030)
India	-0.029 (0.026)	-0.003 (0.025)
Other Asia, Oceania and others	-0.151*** (0.017)	-0.093*** (0.018)
Knowledge of official language (English/French/both as reference group)		
Neither English nor French	-0.118*** (0.017)	-0.162*** (0.026)
Years since migration minus 10 years	0.008*** (0.000)	0.009*** (0.000)
Constant	0.086*** (0.016)	0.337*** (0.015)
R-squared	0.049	0.082
F-statistics	187.230	297.890
Observations	113,107	101,481

Notes: Robust standard errors are in the brackets. * significant at 10%. ** significant at 5%. *** significant at 1%
Source: calculations based on 2006 Census of Canada public use microdata

Table A5 Regressions on log wages, by gender

	Female	Male
Years of schooling	0.140*** (0.002)	0.077*** (0.001)
Working experience	0.041*** (0.001)	0.043*** (0.001)
Working experience square	-0.001*** (0.000)	-0.001*** (0.000)
Marital status	-0.022*** (0.005)	0.187*** (0.006)
Province of residence (Ontario as reference group)		
Atlantic Provinces (Newfoundland, Prince Edward island, Nova Scotia and New Brunswick)	-0.215*** (0.009)	-0.235*** (0.010)
Québec	-0.158*** (0.006)	-0.170*** (0.006)
Prairies Provinces (Manitoba and Saskatchewan)	0.143*** (0.010)	-0.162** (0.010)
Alberta	-0.021** (0.008)	0.039*** (0.008)
British Columbia	-0.088*** (0.008)	-0.072*** (0.008)
Place of Birth		
Jamaica	-0.234*** (0.033)	-0.322*** (0.042)
Other Caribbean and Bermuda	-0.225*** (0.029)	-0.320*** (0.032)
South America	-0.222*** (0.031)	-0.283*** (0.031)
Africa	-0.216*** (0.029)	-0.260*** (0.026)
West Central Asia and the Middle East	-0.252*** (0.036)	-0.339*** (0.032)
China	-0.191*** (0.035)	-0.365*** (0.020)
Hong Kong	-0.167*** (0.028)	-0.184*** (0.033)
Philippines	-0.179*** (0.032)	-0.241*** (0.040)
India	-0.206*** (0.038)	-0.266*** (0.033)

Other Asia, Oceania and others	-0.195*** (0.023)	-0.258*** (0.021)
Studied outside Canada		
Jamaica	0.004 (0.074)	0.029 (0.088)
Other Caribbean and Bermuda	-0.255*** (0.068)	0.111* (0.067)
South America	-0.141*** (0.052)	-0.037 (0.051)
Africa	-0.057 (0.047)	-0.099** (0.040)
West Central Asia and the Middle East	-0.165*** (0.054)	-0.158*** (0.047)
China	-0.255*** (0.044)	-0.100** (0.041)
Hong Kong	-0.023 (0.055)	-0.198*** (0.054)
Philippines	-0.230*** (0.037)	-0.232*** (0.046)
India	-0.370*** (0.045)	-0.171*** (0.040)
Other Asia, Oceania and others	-0.342*** (0.036)	-0.219*** (0.030)
Knowledge of official language (English/French/both as reference group)		
Neither English nor French	-0.281*** (0.073)	-0.319*** (0.068)
Years since migration minus 10 years	0.011*** (0.001)	0.010*** (0.001)
Constant	8.133*** (0.027)	9.205*** (0.024)
R-squared	0.180	0.123
F-statistics	380.240	297.520
Observations	53,879	64,115

Notes: Standard errors are in the brackets. * significant at 10%. ** significant at 5%. *** significant at 1%
Source: calculations based on 2006 Census of Canada public use microdata